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WITH SUPPLEMENT.

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A PREHISTORIC WAR WOUND.

BY

LIEUTENANT LIONEL F. WEST, R.A.M.C.

With Note by

ARTHUR KEITH, M.D.,

CONSERVATOR OF MUSEUM, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

In connexion with certain trenching operations there were brought to light the remains of an ancient British warrior who fought and suffered from a very grievous head wound some 3,000 years ago. In severity it rivals wounds suffered by our soldiers in the present war. The nature of the wound can be best realized from the annexed sketch of the forehead by Dr. Keith. It is not difficult to realize the manner in which the wound was produced or to picture the subsequent sufferings of the victim. In the Neolithic and Bronze periods the favourite weapon was the celt or battle-axe, pointed at one end, flattened and sharp at the other. The wound seems to have been produced by the pointed end of the celt, which fell upon the supraciliary ridge over the left orbit with such a force that it sunk clean within the skull, leaving a sharp-edged hole, about ¾ in. (20 mm.) in one diameter and ½ in. (12 mm.) in the other (Fig. 1, C). The shivering force of the blow fissured the left supraorbital region in such a manner that the external angular process (A) and the supranasal region (B) were partially separated from the rest of the forehead. The injury was not immediately fatal for there are signs of repair all round the wound. In the supranasal region there is abundant evidence of osseous repair attended by suppuration. A sinus leads into the frontal air cell, which had apparently been laid open and become infected. The edges of the primary wound are smooth and even, from absorption and from the deposit of new bone. The most remarkable and puzzling condition is seen at the outer end of the primary wound in the region between A and E. Here the bone has been absorbed or scraped away until the edges of the fissure, extending across the left side of the forehead and reaching the temporal region, are reduced to fine edges. The thinning affects merely the outer table and diploë of the bone; the inner table has not been absorbed. The absorption of the bone in the region A E is, as I have said, puzzling. It may be due to the efforts of the surgeon who attended the case, for we know that in the Neolithic and Bronze periods trephining or scraping was frequently resorted to. On the other hand, the absorption in this area may have been due to the application of some protective contrivance which exerted pressure on the underlying bone.

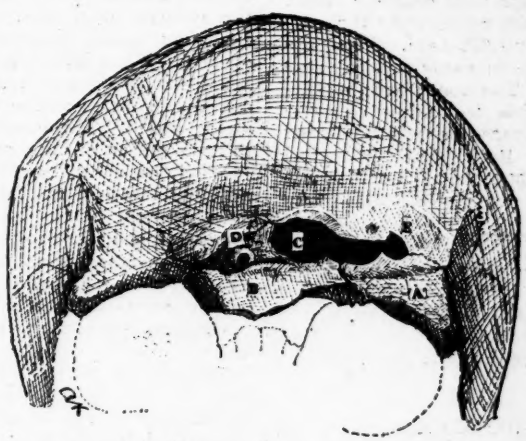


FIG. 1.—Drawing of frontal region of prehistoric skull. A, External angular process. B, Supranasal region. C, Primary perforating wound. D, Sinus leading to frontal air cell. E, Part which has been attenuated either by scraping or by absorption.

In any case the warrior evidently lingered on for months; the outer end of the wound extended over the third left frontal convolution. As will be seen from Dr. Keith's note, this ancient British warrior—a slim, short man—died young, and very probably from sequelae following his wound.

The discovery was made in the following manner. In a lonely spot on the Wiltshire Downs, near the site of a prehistoric camp or fort, during the making of some modern trenches, human bones were discovered. News of this reached Lieutenant-Colonel R. H. Hall, R.A.M.C., who asked me to go and investigate the circumstances. I went, accompanied by Captain Lovatt, R.A.M.C., and Lieutenant Sweetman, R.E.S.

We found that from a long section of trench 6 or 7 feet deep it had been decided to make an offset at right angles. This offset was carried down to the level of the floor of the main trench, which was cut through a layer of soil about 10 inches thick, and then through solid undisturbed chalk. After proceeding some 10 feet along the offset a place was exposed where the upper 4 feet was composed of soil containing human bones. There was a step of about 2 feet of solid chalk, undisturbed, below the soil which contained the bones. Much of this deep soil had been thrown back in the trench for complete removal later. We set to work and carefully passed through a fine sieve the whole of the soil which was lying in the offset and the deep layer of soil. We found many human bones in fragments. Our labours exposed an oval shaft sunk into the chalk to a depth of 4 ft.; it was 3 ft. 9 in. long and 2 ft. 9 in. wide. From the position in which we found the skull, the body had been flexed, chin to knees, laid on its left side, head to north, feet to south facing east, back to west; these bearings were taken by compass. The floor was of undisturbed hard chalk; the overlying soil was about 10 in. thick as shown in all the sections of trenches thereabouts.

The skull was fairly complete, but very soft and friable when found, and of a yellow colour, which changed on drying to a chalky whiteness. This is also true of the rest of the fragments. Judging from the condition of the teeth, the whole of which were found in the upper jaw, we had found the bones of a man well under 30 years of age. Confirmation of the age was found in the scarcely yet obliterated epiphyseal lines in certain of the long bones.

When we came to fit together the "jig-saw puzzle"-like pieces of the skull a very remarkable feature was observed. Over the inner third of the left orbit was an oval opening, ¾ in. long (horizontally) by ½ in. wide, the edges of which were rounded and smoothed off by a healing process; this opening was continued outwards for a further ¾ in., the bone being irregular and very much thinner. Much new bone was thrown out round the opening over an extensive area, and in the centre of the frontal bone, just above the nasal bones, was a deep pit, suggestive of prolonged suppuration and necrosis. After an examination of the fragments it does not require much imagination to picture our warrior taking part in a hand-to-hand combat with stone weapons in which he got the worst of it. A blow from a stone battle-axe, such as we associate with men of his time, "gets home" on his forehead, exactly on the spot where a right-handed man would expect a well-aimed blow to fall on an opponent's head, perforating the frontal bone and depressing the skull. Thus, poleaxed, he should have died at once; at the least he must have been placed immediately *hors de combat*. It would only be reasonable to infer that the victor thought his work complete, or we should not have found the healed margins of the wound and evidence of suppuration and new bone pointing to a lingering death at some later period.

For how long did our warrior lose consciousness after the injury? Did he ever recover it, or, having recovered it, what symptoms persisted? What of the sight of the left eye? What treatment or remedies were applied? The answers to all these questions can only be speculative; yet one of the fragments of bone found in the grave was about 1½ in. square, not human, but part of the orbital portion of the left malar bone of an ox, with the outer table of one of the edges quite rubbed down to the cancellous tissue! *Similia similibus curantur?* Possibly even then a belief. Also the shell of a "moor snail" was found. Had this also any supposed healing virtue? A few flint chippings, showing man's handiwork, were also found along with the bones, but nothing that could be called an instrument of any kind.

Associated with the remains was a small quantity of material, not unlike thin sheets (⅛ in.) of "hair and lime plaster." Could this be the remains of a shroud?

A fragment of one rib possesses a remarkably well developed unciform process.

NOTE BY DR. KEITH.

It was fortunate that one with so sharp an eye as Lieutenant West was at hand when the discovery was made, for it would have been easy for a casual observer to have overlooked the nature of the cranial fracture. I have shown the flint flakes found with the remains to Mr. Reginald Smith, of the British Museum, but they are not sufficiently characteristic to give an accurate date for the burial, which may be assigned to any point of a period extending from the Neolithic almost to Roman times. The posture of the skeleton and a comparison with other discoveries of a like nature lead one to assign it to the Bronze period, or perhaps a late Neolithic date. As Lieutenant West has inferred, the skeleton is that of a young man; his epiphyseal lines have just closed; his teeth are unworn. They are massive teeth, showing a slight degree of irregularity in implantation and a certain degree of contraction of the palate. Contraction of the palate, so common in our modern population, is unknown amongst the ancient British. Nor is Lieutenant West's warrior an exception; the contraction is only apparent, not real, for it is due to the massive teeth being implanted on a palate of more than average dimensions.

As regards head-form, Lieutenant West's warrior has the character of the British of Neolithic period. The skull is comparatively a small one: its maximum length is 184 mm.; its greatest width 136 mm.; its cephalic index 74—long-headed. The height of the vault above the ear-holes 120 mm.; the cranial capacity 1,420 c.cm. From the femur and other bones the stature is estimated to have been about 5 ft. 2 in. (1,658 mm.). The bones are remarkably slim; those of the thigh and leg show extreme flattening. Details of all of these characters will be placed on record in the *Journal* of the Royal Anthropological Institute. The remains may be inspected at the Museum of the Royal College of Surgeons.

ON THE SALT PACK TREATMENT OF INFECTED GUNSHOT WOUNDS.

BY

J. E. H. ROBERTS, M.B., B.S., F.R.C.S.,

AND

R. S. S. STATHAM, M.D., M.R.C.S.,

TEMPORARY CAPTAINS R.A.M.C.

THE method of dressing wounds with a firm pack of gauze and sodium chloride tablets, devised by Colonel H. M. W. Gray, C.B., combined with a preliminary free excision of the wound and lacerated and infected tissues, has in our hands given results which have effected revolutionary changes in our methods of treatment. During the last twelve months it has gradually supplanted other methods of treatment, until now we employ it in the majority of cases. At first we regarded it with suspicion and used it but half-heartedly; finding, however, that wounds dressed in this way became clean at least as speedily as those treated by other methods, and that the general condition of the patients improved owing to undisturbed sleep, increase of appetite, and absence of mental apprehension of frequent painful dressings, we ended by becoming complete converts to the method.

The operative details in connexion with a wound naturally vary with the site, nature, and degree of infection of the wound.

For example, wounds of the buttock by shrapnel ball or shell are invariably laid open in their whole extent. If there are separate entry and exit wounds they are joined by an incision dividing the glutei down to the track between them. Foreign bodies are removed and the necrotic tissue lining the track excised. Bleeding points are tied with catgut, and after examination for bony or visceral lesions a salt pack is applied. Such a wound is often ready for suturing within ten days to a fortnight.

Wounds of Limbs.

The superficial wound if small is excised so that it will admit a finger. The full extent of the wound is then determined as far as possible by digital examination, and unless essential structures are involved the whole area is laid open, all pockets being exposed to the end. Foreign bodies, including pieces of cloth and blood clot, are carefully searched for and removed, and all necrotic tissue cut away with scissors until a freely bleeding surface remains. If the deep fascia or superficial muscles tend to come together and close the mouth of the wound sufficient tissue is excised to ensure that, when the salt pack is in place, the mouth of the wound will be widely open. A conical wound not requiring the use of drainage tubes is thus produced.

Where there exist entry and exit wounds and their junction would involve the sacrifice of essential structures, such as a large motor nerve, two conical excisions with their apices meeting in the centre of the track may be made and a pack applied at each end.

In all cases side tracks and pockets are opened up so that they may be packed to the bottom. Where a fracture exists, fragments, unless small and completely detached, are not removed. These proceedings are not really so heroic as at first sight may appear, for, first, most of the muscle excised is infected, and secondly, it has been shown that muscular tissue even though not infected has lost its striation and contains haemorrhagic areas for a considerable distance around a gunshot wound. Such muscle will not regain its function and will ultimately be replaced by fibrous tissue. Fascia and tendinous structures are badly supplied with blood and invariably slough when exposed in infected wounds. They should be cut away at the primary operation. On the other hand, the sheaths enclosing intact muscles should not be unnecessarily opened. When infection is confined to a single muscle it is sometimes advisable to remove the whole belly in its sheath, for instance, the rectus femoris or one of the hamstring group. Thrombosed veins should be dissected out to their full extent and excised.

With the exception of iodine for the skin we do not apply any antiseptic to the wound.

The wound having been thus prepared the salt pack is applied in the following manner. A piece of plain gauze, four to six layers thick, is lightly wrung out of 5 per cent. salt solution and carefully laid in the wound so that it is in contact with the whole of the surface. Care should be taken that this sheet of gauze is sufficiently large to cover the whole surface of the wound. If several smaller overlapping pieces are used, small spaces in which pus collects form at the lines of junctions and there is also great danger of the pieces being displaced when the rest of the packing is inserted, thus leaving bare surfaces. When the wound is a deep one the gauze lining is carefully carried down by the fingers within it to the deepest recesses of the wound. No spaces should be left, as they rapidly fill up with pus. A few 40 grain tablets of salt* are now placed in the deepest part of the wound, or, if the wound is flat, placed on the surface of the gauze about an inch apart. The interior of the gauze-lined wound is now firmly packed, somewhat in the manner of the old-fashioned petticoated tube, with a roll or long strip of gauze moistened in the same way. This strip is carried alternately from one end of the wound to the other and numerous tablets of salt are laid between the successive layers. A handful of tablets should not be thrust in all together, as when they dissolve a cavity is formed. For a wound 4 in. long by 3 in. deep ten to twenty tablets would be used. When the pack becomes flush with the skin surface a few more layers of gauze are applied and over that a thick wool dressing, composed of at least three layers, completely encircling the limb. The whole is then firmly bandaged, so that the surface of the wound is kept in intimate contact with the pack, and all spaces which tend to form are obliterated. Really firm pressure should be used both in applying the pack and in bandaging. The elasticity of the thick wool dressing distributes the pressure and effectually prevents anaemia of the wound surface and congestion of the limb below.

Where a compound fracture is present it is not usually possible to avoid leaving spaces between and around the fragments of bone, and therefore in such cases, after placing the lining sheet of gauze, a large rubber tube is introduced down to the fracture and the remainder of the gauze and tablets packed around it. This serves to prevent the tracking of pus along the bone. A hole cut in the lining gauze allows any discharge to gain free access to the tube.

* These tied up in convenient numbers in small gauze bags may be sterilized along with other dressings in the autoclave.

We have frequently packed on to exposed main arteries, such as the femoral, brachial, and subclavian. In no case has the vessel given way, but we have been careful to interpose a rather greater thickness of gauze than usual between the hard tablets and the vessel. If a salt tablet comes into direct contact with the tissues it causes a necrotic area a little larger in diameter than itself, but quite superficial, its depth being not more than a millimetre. This is really of little importance, as it disappears by the next dressing, but is better avoided. It appears to be quite safe to pack on to exposed surfaces of bone.

During the first twelve to twenty-four hours a copious exudation of serum occurs, soaking the gauze, wool, and bandage. After this no further exudation usually takes place, and, if the dressings are inspected during the next four or five days, they are generally discovered to be quite dry. As soon as the outer layers of the dressing become moist a packing of fresh sterile wool is placed outside without removing the bandage.

It is important that the wound should be kept at rest. In large wounds of limbs we employ a splint, but in smaller wounds the nature of the dressing, with its firm bandage and the fact that the serum-soaked outer gauze dries into a hard mass of the consistency of a starch bandage, renders a splint unnecessary.

After dressing, morphine tartrate grain ¼ is usually given, as most patients complain of pain for a few hours. In many cases, however, the pain is quite slight, and no analgesic is necessary. In the few cases in which pain has persisted exposed sensory nerve endings have been discovered, and these may be cut short under novocain. Successive dressings become less painful, and after the second an analgesic is usually unnecessary. A rise of temperature and increase of pulse-rate usually follows the manipulations, but unless these persist after twelve to twenty-four hours no apprehension need be felt.

In the behaviour of the temperature and pulse the cases fall into three main classes. In the larger number the temperature and pulse-rate fall to normal on the second day and remain so, except for temporary slight rises following the first dressings.

In another class the pulse-rate comes down at once, but the temperature comes down by lysis, taking four or five days to reach the normal. In a comparatively small number of cases, although the pulse-rate remains below 90, the evening rise of temperature may persist for one or two weeks, although the wounds when dressed appear clean and free from retained pus.

The pulse-rate and general condition of the patient is a much better index of the well-being of the wound than the temperature.

After a few days the outer dressings may acquire a very offensive odour. This is due to decomposition in the dressings themselves, and if they are removed the wound is found to be perfectly sweet. The outer dressings are more offensive than the inner. At one time we changed the outer dressings when they began to smell, leaving the packing in the wound untouched. The objection to this is that it is difficult to change the outer dressings without disturbing the deep pack. We then used various substances, such as sanitas powder, potassium permanganate, and cupad powder, thickly dusted on the dressing immediately beneath the outermost layer of gauze. All these diminish the odour. With Dakin's chloramine-T powder, which we are now using, all odour is practically abolished. Mixing chloramine-T tablets with the salt tablets in the deeper dressing was found to be unsatisfactory, as it did not prevent the smell.

The Normal Favourable Course.

The course of events in an ordinary, fairly severe, infected wound of the soft part is as follows: After excision and packing the dressing is untouched for five or six days; the wound is then dressed, usually under an anaesthetic. In the majority of cases the pack is now loose, and the dressing comes away as a whole. The surface of the wound is covered with a yellow fibrino-purulent exudate, with here and there a few small yellow sloughs where damaged muscle or aponeurosis has been incompletely removed. A small amount of creamy yellow "laudable" pus is seen in the wound, quite different in appearance from the original brownish stinking anaërobic pus. If the surface of the wound is swabbed, some of the exudate is removed, exposing a readily bleeding surface underneath. The muscle is no longer oedematous and does not project beyond the skin surface, which is quite healthy and shows no sign of surrounding inflammation. The skin is swabbed with iodine and a fresh salt pack is applied, smaller in dimensions than the primary one. The pressure of the wound surface against the gauze pack is re-established when the firm bandage is applied. This dressing is changed in another five or six days and the whole surface of the wound is now seen to be covered with brilliant red, easily bleeding granulation tissue, all sloughs having separated. If some areas are not yet clean, another pack is inserted, otherwise the wound may be brought together with strapping or may be sutured. The majority of wounds of soft parts are ready for closure within three weeks. Some have been closed as early as the tenth day. The time which is required before a wound is in a fit state to close varies in accordance with the nature of the tissues exposed. Thus muscular tissue rapidly becomes clean. Tendinous and fascial sloughs take longer to separate. Pieces of dead bone take so long that it is inadvisable to close a wound complicated by a fracture.

Indications for Changing the Pack.

Indications that the wound is not doing well and that the pack must be changed are:

1. A continuously rising pulse-rate.
2. Increasing oedema in the limb.
3. Sudden onset of severe pain. This generally means spreading gas infection.
4. A persistent *rise* of temperature for which no other cause can be found.
5. A change for the worse in the patient's general condition in cases in which a raised temperature has persisted from the beginning.
6. Oozing of pus from under the edge of the dressing. This is generally due either to the dressing having been left unchanged too long, or having been too loosely applied.
7. The dressing must be reapplied when the pack has become loose from diminution in the circumference of the limb as oedema disappears.

Some Other Details.

Where the innermost layer of gauze is found to be firmly adherent to the wound surface it is not removed, but a new pack is applied within it. If it is removed bleeding is caused, the protective barrier is broken down, and a rise of temperature takes place.

When once the wound is granulating healthily it is not advisable to continue the salt pack, as the granulations become exuberant, pale, and oedematous. If the wound cannot be closed, any of the simple dressings should be applied.

Occasionally a wound becomes sluggish, even during the separation of sloughs. A change from the salt pack to a dressing of gauze soaked in pure glycerine usually causes a rapid change for the better. Where a wound is not doing well with a salt pack, and a pure streptococcal infection is present, the use of a 1 per cent. salt solution as a wet dressing, continuous irrigation or bath will sometimes be found to effect an improvement.

Conclusions.

The salt pack has given very good results with flush amputations and in excised joints. It appears to be of great value in field ambulances and clearing stations, as in time of stress it may be impossible to renew dressings for two or three days. Those cases we have received from clearing stations in which the treatment has been thoroughly carried out have arrived in excellent condition, and contrast very favourably with those treated by other methods. Cases treated by eusol irrigation, however clean they may be when leaving the clearing station, often have their wounds in an unsatisfactory state on arrival at the base twenty-four hours later.

Our advocacy of this method of treating wounds is based entirely on our clinical experience, and we do not in this place advance any theories to explain its action. It is based originally on the well-known work of Sir Almroth Wright.

Cases.

The following cases are given as examples of different types of wounds. The list might be extended manyfold:

CASE I.—*Wounds of Right Leg and Left Thigh: Gas Infection of Both Wounds.*

Pte. B., admitted May 25th, 1916. Small superficial entry wound in left calf running deeply in, with a tube in it. Calf greatly distended and bubbling with gas, skin bronzed. In front of outer side of left thigh was a wound the size of a shilling; great oedema of muscles, stinking pus and gas oozed out.

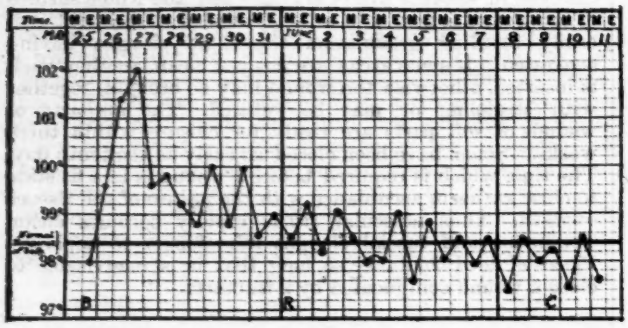


CHART 1.—Case I. B, On admission, operation, morphine gr. ¼. R, Re-packed. C, Redressed; strapped.

Operation.—Wound in calf of leg laid widely open—much infected muscle cut away and a cavity 6 inches long down to the bone left and packed with salt and gauze. The left thigh treated in same way. Patient collapsed, jaundiced and vomiting; put on "dangerous" list. May 26th, 1916: Temperature 102°, but pulse 86 only. Still vomiting. *B. perfringens* grew freely from pus. May 27th: Great improvement; temperature 99.2°; eating well. June 1st: Repacked for first time; much cleaner. June 9th: Redressed; quite clean and granulating; wound strapped. June 13th: Sent to England practically healed. (See Chart 1.)

CASE II.—*Wound of Thigh: Gas Infection.*

Pte. W., admitted May 11th, 1916, with deep wound on outer side of left thigh. A tube had been put deeply into muscles of thigh, where it was tightly grasped by swollen muscle. Thigh much swollen up; very tender and bronzed. Tube removed, and much stinking gassy pus came away. Wound excised freely. Gauze and salt pack applied. May 14th: Comfortable; thigh now not swollen; much smaller, so that bandages and pack are loose. Repacked without anaesthetic. May 19th: Redressed; wound clean and granulating. Strapped across and sent to England next day. (See Chart 2.)

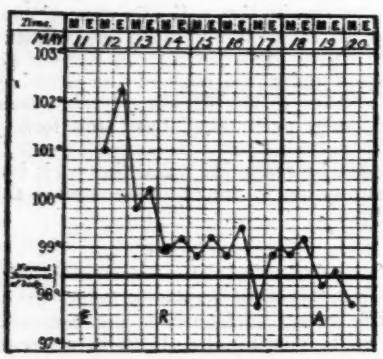


CHART 2.—Case II. E, Operation; packed. R, Repacked. A, Redressed.

CASE III.—*Wound of Left Buttock.*

Pte. C., admitted April 28th, 1916. There was a penetrating wound of left buttock, with entry and exit wounds at upper and lower margins and a space between of 7 in. Great oedema and redness. April 29th: Track laid open in its full length. Full of foul pus and necrotic tissue. The wound was about five inches deep in the centre when all muscles were divided. Firm salt pack applied. May 2nd: Redressed; cleaner; *B. pyocyaneus* present; repacked. Temperature to 101° each night, but pulse keeps about 90. May 6th: Repacked. May 12th: Pack out; clean and granulating; strapped across and to be dressed daily. May 14th: Sutured with deep stitches; small bit of rubber tissue drain at angle. May 20th: Good union; stitches out. Corner where drain was, not quite healed. Rest of wound entirely healed. Corner strapped. To England. (See Chart 3.)

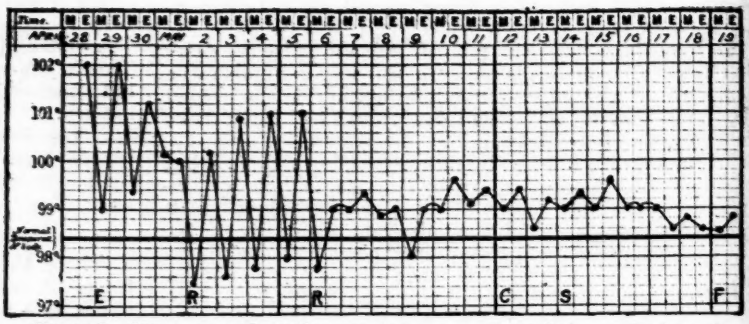


CHART 3.—Case III. E, Operation; packed. R, R, Re-packed. C, Re-dressed; strapped. S, Sutured. F, Stitches taken out.

CASE IV.—*Shell Wounds of Leg and Arm: Gas Infection.*

Pte. S. Two wounds outer side of leg; gassy herniating muscle; whole limb from foot to knee swollen to nearly twice the size of its fellow. *Wound of Forearm:* X ray shows two pieces of shell in arm and two in leg. May 27th, 1916: Immediate operation; wounds of leg excised and enlarged; much sloughing muscle tissue excised. One foreign body removed through lower wound; the upper piece of shell through a counter incision on inner side of leg. It had passed through tibia and fibula. This wound also was made conical. Numerous half-inch incisions into subcutaneous tissues were made all round the leg from foot to knee. Salt packs to all three wounds. Wound of arm not badly infected. Shell fragment removed; salt pack. May 31st: Repacked; wounds covered with yellow slough. June 5th: Repacked; oedema gone, wounds cleaner. June 12th: Repacked; upper leg wounds looking cleaner; some slight oedema in lower wound. June 15th: Put on daily glycerine dressings, as granulations were looking pale. The deeper part of wounds closed and wounds almost flat. June 20th: Sent to England.

CASE V.—*Wound of Thigh: Septic Thrombosis of Saphena Vein.*

Pte. R. March 9th, 1916: Admitted to eye wards. Right eye blind; much chemosis; wound of lower lid; septic wound of right thigh. March 12th: Transferred to surgical division. Wound below eye reopened; piece of shell removed from below and behind globe. Entry wound on outer side of thigh excised. A conical excision of infected sloughing muscle down to femur. The track passed behind the bone. Two pieces of shell removed through a counter incision on inner side of thigh. Femoral artery not felt. Salt packs to both wounds. March 17th: Right eye excised as orbital cellulitis persisted. Wounds of thigh dressed; some more sloughing muscle removed. The internal saphena vein was thrombosed, and contained pus from within an inch of the saphenous opening to near the knee. It was tied at both ends and dissected out. A deep branch under the deep fascia was thrombosed and was removed. Salt-pack dressing. March 20th: A small haemorrhage occurred into a wound on outer side of leg. Clot turned out, and bleeding point in muscle tied. Wounds cleaner; packed. March 30th: Repacked; wounds granulating. A few small tendinous sloughs to separate. April 6th: Repacked; wounds quite clean and granulating. April 20th: The patient was sent to England, the wounds now being small, and rapidly closing.

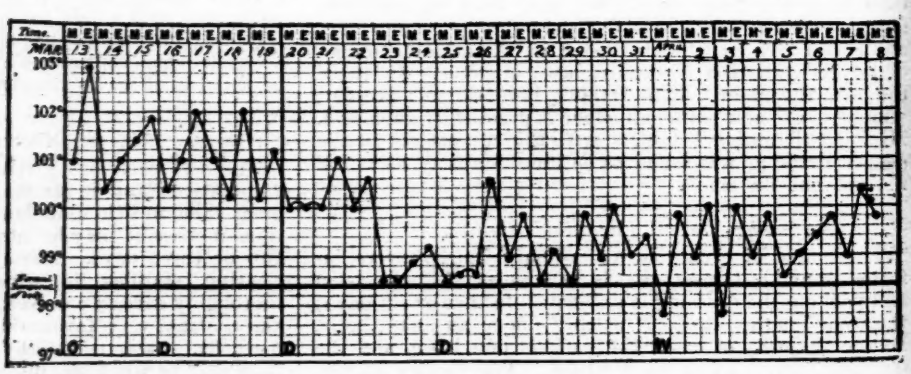


CHART 4.—Case VI. O, Operation. D, D, D, Dressed (anaesthetic). W, Dressed without anaesthetic.

CASE VI.—*Shell Wound of Thigh.*

Pte. B. March 13th, 1916. Very offensive wound through back of lower end of thigh between femur and hamstrings. No vessel or nerve injured. Entry and exit wounds enlarged. Much sloughing muscle excised, two funnel-shaped wounds meeting behind femur being thus made. A piece of shell was found and removed. Salt packs to both wounds. March 16th: Dressed under anaesthetic. More sloughing muscle excised.

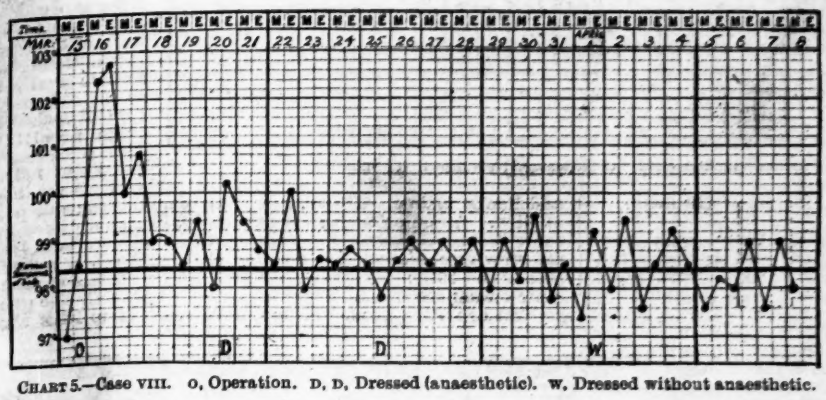


CHART 5.—Case VIII. O, Operation. D, D, Dressed (anaesthetic). W, Dressed without anaesthetic.

Salt pack. March 20th: Dressed under anaesthetic; wounds quite clean. March 25th: Dressed wounds covered with healthy red granulations and much smaller. Redressed on April 1st, 4th, and 8th. Sent to England with wounds almost healed. (See Chart 4.)

CASE VII.—*Compound Fracture of Humerus and Rib.*

Pte. G. December 28th, 1915. Wound of arm enlarged. Sloughing muscle excised down to fracture of middle shaft of humerus. Wound 4 in. long. Bone not much comminuted. Salt pack and Delbet splint. Wound of chest wall also excised and part of fractured tenth rib removed. Wound of arm was redressed about every five or six days. It rapidly became clean, and patient went to England on February 6th, 1916, with firm union of bone and a small superficial granulating wound. The bullet, which was not seen in the skiagram of the chest, was afterwards discovered under the skin of the loin, and removed under novocain. The temperature and pulse-rate remained normal after the first few days.

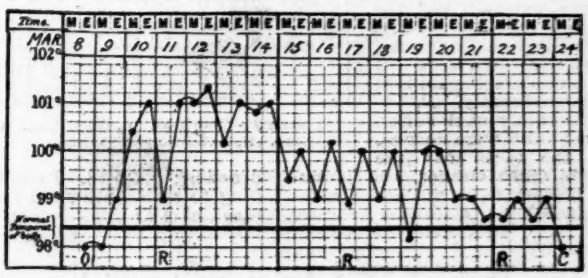


CHART 6.—Case XI. O, Operation. R, R, R, Repacked. C, Redressed; strapped.

CASE VIII.—*Perforating Wound Buttock to Groin: Femoral Artery Exposed.*

Pte. F. March 15th, 1916. One wound on inner side of thigh just below scrotum, one on outer side of buttock. Both about ¼-in. in diameter and exuding stinking pus. Immediate operation. Both wounds freely opened up; large cavity beneath wound on inner side with femoral artery exposed in its roof. Outer wound revealed sciatic nerve partly divided. Wounds salt-packed after excision of all sloughing muscle. Foot put on splint at right angle as paralysis of all leg muscles was complete. March 20th: Repacked; yellow pus. March 25th: Repacked; wounds covered with bright red granulations. April 1st: Dressed without anaesthetic. April 8th: Sent to England with wounds rapidly closing. (See Chart 5.)

CASE IX.—*Wounds of Thigh: Femoral Artery Exposed.*

Pte. S. March 5th, 1916. Septic wound of left groin 3 in. long. Superficial wound excised. Track passed backwards for 4½ in., deep to the adductors. Common femoral artery exposed but not injured; some sloughing muscles excised; salt pack. A second wound on outer side of thigh with septic herniating muscle was excised; wound penetrated vastus externus; salt pack. March 10th: Wounds repacked. Yellow pus instead of dark brown anaërobic pus. March 15th: Repacked; wounds granulating and clean. April 8th: Patient sent to England, wounds rapidly closing after strapping.

CASE X.—*Compound Fracture of Ulna and Radius: Gas Infection: Thrombosis of Median Basilic Vein.*

Pte. I. March 25th, 1916. Three septic wounds, one in antecubital fossa, one on inner and one on outer side of forearm. Rubber drainage tubes protruding, tightly gripped by herniating gassy muscle. Much swelling and oedema. *X* ray showed fracture of both bones not involving elbow-joint. Ulnar anaesthesia and paralysis.

Operation.—Wounds opened up, median basilic vein thrombosed and removed. Gangrenous muscle excised; salt pack to all wounds. Put up in Thomas's arm splint fully supinated. The ulnar nerve was seen to be bruised and partly frayed. April 1st: Dressed; no spread of gas; yellow pus. April 7th: Repacked, wounds much cleaner. Some red, easily-bleeding surfaces seen; still some sloughs. April 14th: Repacked, wounds clean. April 20th: Redressed without anaesthetic. Wounds clean and much smaller. May 6th: Sent to England with wounds nearly healed; bones uniting.

CASE XI.—*Aneurysm of Posterior Right Tibial: Compound Fracture of Left Tibia.*

Pte. C., admitted March 8th, 1916. Right leg enormously swollen and brown; no pulse at ankle, small wound on front of leg. Wound explored at once. Piece of shell removed, and huge mass of clot and pus found in calf of leg; very offensive; an arterio-venous aneurysm of posterior tibial was ligatured and removed, and a large posterior excision of muscle performed. Salt pack. Left leg put up in splints. Shell fragment removed from between ends of tibia. Salt pack to fracture with small tube in centre of pack. March 11th: Pack loose; removed and replaced; cleaner; less swollen. March 17th: Repacked; cleaning rapidly. Fracture in good position. March 22nd: Repacked, now granulating fast; still a few sloughs. March 24th: Redressed and strapped. Sent to England three days later. (See Chart 6.)

CASE XII.—*Compound Fracture of Humerus, Involving Elbow-Joint.*

Pte. S., admitted April 19th, 1916. Arm was enormously swollen above and below elbow. There was much comminution of lower end of humerus, and the tissues were full of foul pus; a big tube had been thrust through the bony fragments. Fingers moved well, and no sensory changes detected. An attempt was made to save arm; wounds enlarged each side of arm and loose fragments of bone removed; much pus let out. Salt-packed with a tube down to fragments on each side, inside the inner gauze. Put up abducted on Thomas's splint with extension. April 27th: Slight haemorrhage, repacked, very clean; more fragments of bone removed and small vessel tied. Temperature 101.4°, pulse 92. May 4th: Repacked; cleaner; temperature 101°, pulse 84; has had temperature up to 101° or 102° each night; pulse keeps about 90. May 10th: Repacked;

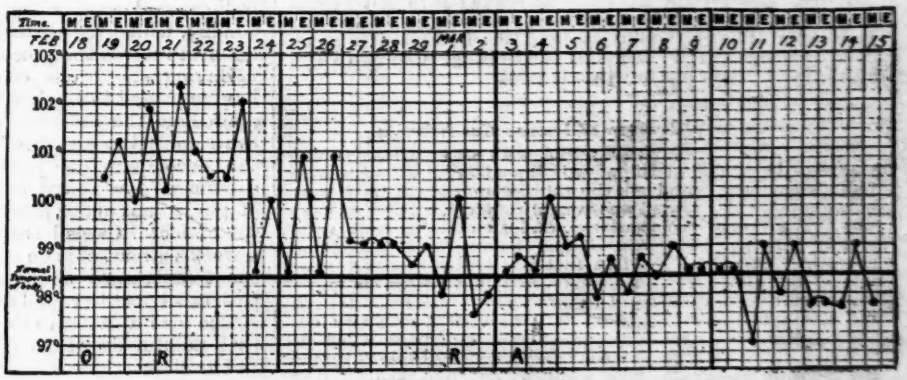
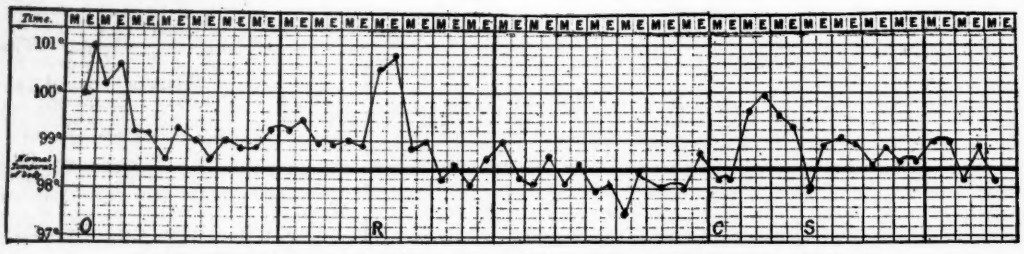


CHART 7.—Case XIII. O, Operation. R, R, Repacked. A, Redressed.

arm became oedematous; pus let out of hand and forearm from small wound there. Was repacked every four or five days, and by June 1st temperature and pulse both normal. Joint now bent at an angle, and hand supinated. June 10th: Temperature 100°, pulse 100; small pocket of pus opened over olecranon; temperature and pulse became normal. Arm looks very well,

and elbow is firmly ankylosed; fingers move, and arm is apparently going to be useful. Still in hospital on daily dressing, and granulating fast.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although possibly very alarming in the first few days after the operation of drainage, soon settle down without any dressing being changed.

It will be clearly understood that there are certain cases which call for special treatment; for example, some septic arms and legs are opened up and put straight in saline baths. These cases, however, are outside the object of the present paper; likewise wounds of the head and thorax; but, after nine months of trial, we have adopted the following general line of treatment in the majority of septic wounds.

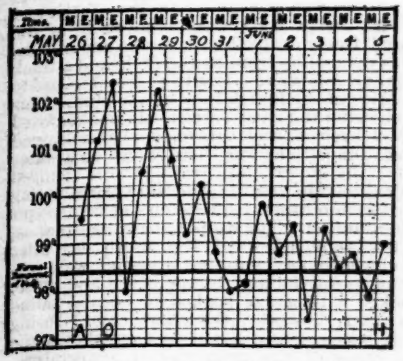

CHART 1.—Case I. A, On admission. O, Operation. H, Dressed and sent on hospital ship.

General Plan of Treatment.

The patient is taken to the theatre and the wound thoroughly opened up, foreign bodies removed, and all blood clots washed out of the wound with some antiseptic such as eusol. It is then packed with gauze, in the folds of which are numerous saline tablets, and a moist dressing placed on the outside. In the case of large wounds the limb is immobilized by some kind of splint, even if there is no fracture of bone.

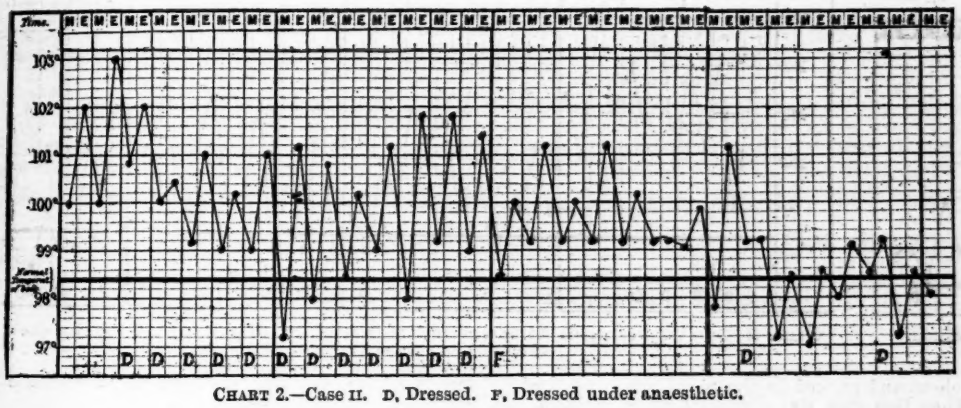

CHART 2.—Case II. D, Dressed. F, Dressed under anaesthetic.

In our experience it is advisable to leave the patient for about a week without changing anything except the outside dressing, which after the first few days becomes soaked with purulent discharge. During the first three or four days the temperature and pulse are often unpleasantly high, and it requires great self-restraint not to dress the case. At the end of the week the temperature and pulse have generally subsided, and when the wound is dressed it will be found that the gauze is no longer adherent and the plugging comes away without difficulty, being soaked in a thick pus. The wound is then gently irrigated and healthy well-formed granulations are seen everywhere.

After this we change the dressings rather more frequently in order to approximate the surfaces of the wound by the use of plaster strapping or in suitable cases by secondary sutures. In most cases the extent of the pack is reduced at each dressing, while the same equable pressure is maintained by slightly tightening the external bandages.

Signs Justifying Change of Dressings.

What, then, are the signs to justify the change of a dressing in the acute stage? The most important sign is—

Increase in swelling and oedema. This means that the original drainage operation was not sufficiently drastic.

The *pulse-rate* at this stage is also valuable, as a persistently rising pulse points to the same cause.

Increase in pain and tenderness are of some significance, but a rise of temperature in itself is of very little value.

Pocketing is indicated in the chronic stages by a step-ladder rise in temperature and pulse, with increase of tenderness. Recently one of us (A. J. W.) has been trying tight bandages in these chronic cases where there is a tendency to this complication, in order to approximate the walls and obliterate the cavity of the pocket. The results of such treatment are distinctly promising.

To sum up, then, a change of dressing in the acute stage is only justifiable for purposes of investigation to see where further drainage is necessary. In the chronic stages a change of dressing should be carried out in order to approximate the walls of the wound, or to open a pocket of pus which is under pressure.

Various criticisms and objections, mostly based on theory, have been offered to this line of treatment.

1. *Smell.*—This can be avoided to a large extent by changing the outside packing (if this does not involve the disturbance of the limb or patient) and by putting large quantities of "eupad" between the layers of wool.

2. *Absorption.*—Many people consider that if pus is present deleterious absorption of toxins must take place. Of this, however, there is not a scrap of evidence, provided that the pus is not under pressure.

3. *Pocketing.*—It is difficult to disprove such criticism, as pocketing takes place under any line of treatment, but in our opinion this complication arises less frequently now than it did a year ago before we adopted the principle of "infrequent dressings."

4. *Haemorrhage.*—Secondary haemorrhages are liable to occur in any septic wounds near an artery, more especially if the vessel had been previously injured. The only method of preventing this complication is to do away with conservative surgery and to amputate every septic limb.

5. *Skin Irritation.*—Occasionally, where the wound is in a position of pressure, such as wounds of the back, the skin does become slightly irritated by the purulent discharge, but this can easily be remedied by changing the outside dressing rather more frequently.

6. *Delayed Healing.*—The evidence, in our opinion, points to the fact that a wound which is undisturbed undoubtedly heals more rapidly than one in which the granulating surface is torn open every day by the removal of adherent gauze.

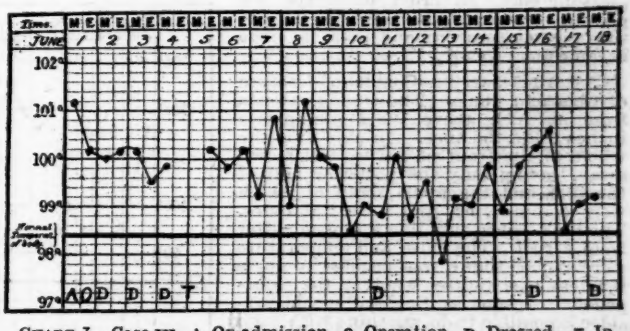

CHART 3.—Case III. A, On admission. O, Operation. D, Dressed. T, In the train, dressed with saline tabloid.

We do not wish people to think that we claim invariable success. Like most, we have had a few cases which became rapidly worse in spite of all our efforts. It is unnecessary to publish charts illustrating those cases.

Finally, we should like to state that this line of treatment is not founded upon any theory, and therefore should not be rejected on purely theoretical grounds, but should be given a fair practical trial.

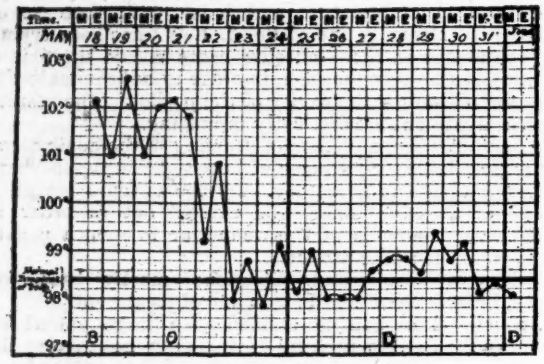

CHART 4.—Case IV. B, Bath (saline). O, Operation. D Dressed.

CASE I (Chart 1).—The patient was admitted with a deep wound of the thigh with no exit. The temperature two days after admission—that is to say, four days after the patient was wounded—rose to 102.6°. A large tracking abscess was found in connexion with a piece of shell. The foreign body was removed and the wound widely opened up and a dependent incision made, and the whole wound packed in the usual way with soloids and gauze. When this case was dressed for the first time after operation several Swiss medical officers were present. After noting the normal temperature and pulse recorded in Chart 1, they were surprised to find the dressing and wound soaked with pus, and still more to see beneath this a surface covered with healthy granulations.

CASE II (Chart 2).—An officer, suffering from a large flesh wound of the thigh. For some time he was dressed daily, and then left for seven days. The patient himself was very willing to put up with the slightly unpleasant odour in order to escape the painful dressing. It will be noticed that the temperature and pulse at once became more steady.

CASE III (Chart 3).—Compound fracture of tibia and fibula. The wound extends from an inch above the ankle to two inches below the knee. In this area the whole of the front of the leg was blown away, leaving only the posterior half of the tibia and the fibula, both of which were comminuted, and the calf muscles. The tibia looked just like a broken gutter from a roof. The pulse and temperature were so good that it was decided to make it a test case and see whether the orthopaedic surgeons in England would consider it possible to do anything with such a limb. When the patient left for England the whole surface was covered with healthy granulations.

CASE IV (Chart 4).—A patient who had a large wound of the upper arm. It was treated by baths for three days and then further drained and packed with salt and gauze. When dressed at the end of seven days granulations were found to be perfect.

CASE V (Chart 5).—Compound fracture of ulna and radius. The dressing was offensive to the patient. In this case the wool was not impregnated with eupad. The chart is typical of minor injuries.

CASE VI (Chart 6).—On admission to hospital this patient was suffering from a septic discharging wound on the right buttock and beneath the left scapula, with other minor injuries. On account of formation of an abscess in the back with rise of temperature and pulse, he was put under an anaesthetic and the wound explored. A foreign body was removed from the buttock and the wound freely drained with gauze and soloids. The abscess cavity was opened up from end to end, and a track leading from the lower excision was explored and found to lead to a foreign body at the level of the fourth lumbar vertebra. This foreign body did not show on the *x*-ray screen. It was removed by an incision directly over it, and this incision also drained with soloids and gauze; the patient was then placed on a water bed. On the fifth day the superficial dressings were changed on account of the objectionable smell. The skin surrounding the wound was treated with ointment spread on lint on account of the superficial inflammation. The deeper dressing—that is, gauze drains—was not removed until the ninth day after operation. On the eleventh day another dressing was performed because of the unsatisfactory temperature and pulse. The wounds were packed with gauze soaked in normal saline solution. Two days later, however, the chart records being still unsatisfactory, it was resolved again to anaesthetize the patient and seek for cause of continued rise of temperature. This proved to be another foreign body in a small wound below the right scapula, round which an abscess had formed; the removal of the foreign body and free drainage of the abscess were followed by an immediate improvement, and on discharge from this hospital all the wounds, although freely bathed in pus, were granulating healthily. This case illustrates, first, the necessity of free drainage, and secondly, that if the cause of a further rise in temperature cannot be discovered by means of an ordinary dressing an anaesthetic should be given and a thorough search made.

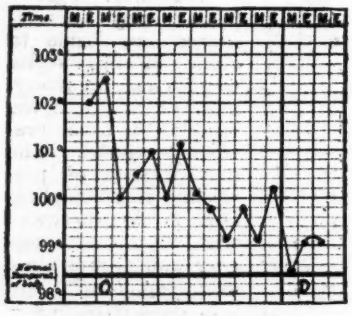

CHART 5.—Case V. O, Operation. D, Dressed.

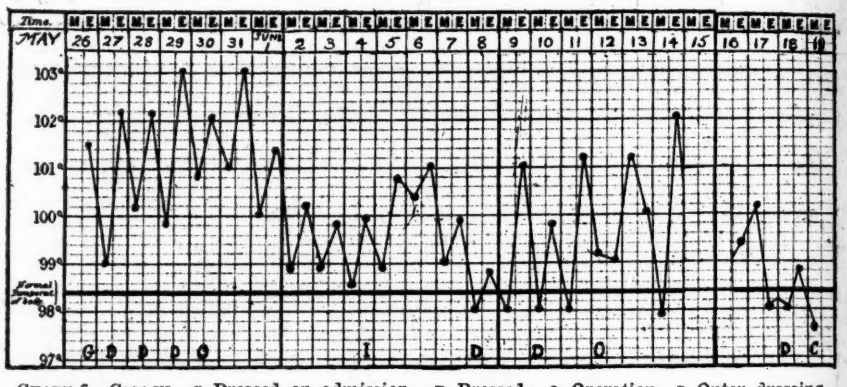

CHART 6.—Case VI. G, Dressed on admission. D, Dressed. O, Operation. I, Outer dressing changed. C, Sent to England.

CASE VII (Chart 7).—This patient is still in hospital, and although his chart is not very remarkable, the rapidity with which a filthy sloughing wound became covered with healthy granulations was astounding. The patient was admitted with a wound in the lumbar region without an exit. In the left buttock there was a large-sized entrance wound and a corresponding exit wound in the right buttock. X rays showed a foreign body near the transverse process of the fourth vertebra.

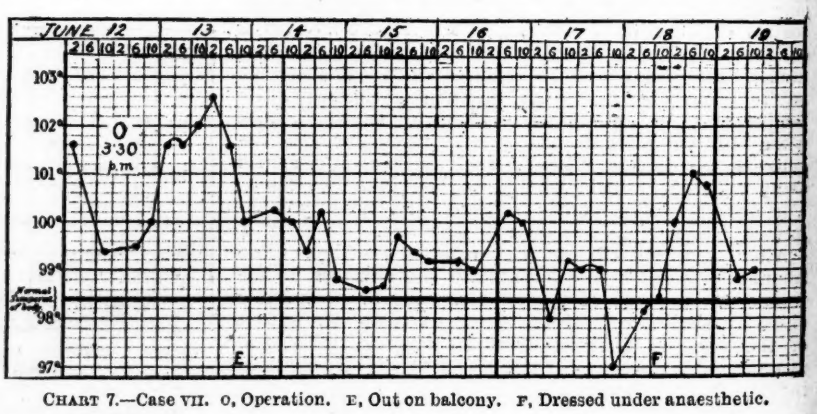

CHART 7.—Case VII. O, Operation. E, Out on balcony. F, Dressed under anaesthetic.

In the upper wound the spine and laminae of the vertebra were found to be fractured, and were removed, together with a foreign body. Next the two lower wounds were joined by a long incision. It was then found that the lower part of the sacrum and coccyx were damaged, and had to be excised. Large pieces of slough and khaki were removed, and the whole wound packed with

gauze and soloids. On the sixth day the patient was dressed under an anaesthetic. The old wound had been transformed into a granulating surface, as mentioned above, but the temperature, as is so often the case, rose after the dressing.

SECONDARY INFECTIONS OF JOINTS IN ACUTE MEDICAL AILMENTS.

BY

LIEUT.-COLONEL G. H. EDINGTON, R.A.M.C.(T.F.).

SECONDARY infections of joints may occur from wounds or other surgical lesions in the neighbourhood or in a distant part of the body, or they may occur as a complication in medical cases. It is with the latter group that I propose to deal, but I would like in passing to mention examples of the others.

Joint Infections Secondary to Wounds or other Surgical Lesions.

These cases fall into two classes:

1. A wound in the neighbourhood of but not primarily involving a joint becomes septic, and the process spreads directly into the joint. One of the best examples of this is a septic wound or abrasion on the dorsum of a finger, over an interphalangeal joint. The bursa may become involved, in which case septic arthritis, followed by ankylosis, will most probably ensue.

2. Joints may become the seat of pyaemic infection, the primary lesion being in a distant part of the body. As an example of this there occurs to me the case of a young lad I saw some years ago, and in whom removal of enlarged turbinal bones was followed by pyaemic infection of wrist and knee joints.

Secondary Joint Infections in Medical Cases.

It is, however, with joint infections which occur as a complication in medical cases that I am immediately concerned. Several examples have come to my notice within the last few weeks in this hospital, and form the basis of the following remarks.

CASE I.—*Bronchopneumonia, Pneumococcic Abscess of Knee, and later Pneumococcic Abscess in Buttock.*

Pte. B., aged 20, admitted to a medical ward under the care of Captain De Boer on March 15th, with cough and pain in chest. Examination showed bronchopneumonia, chiefly in left base. Two days later complained of pain in right knee, which began to swell. Subsequently whole limb became swollen. Needle withdrew from joint some turbid fluid which showed pneumococci in film and in culture. He was transferred to surgical division, where joint was opened and drained. One month later large abscess formed in left buttock; pus contained pneumococci.

It was not possible to obtain a history of the date of onset of the pulmonary condition, but it was several days before admission to hospital. The joint condition was a complication rather than a sequela, successive consolidation of different areas of lung tissue being noted during the healing of the joint lesion.

There was nothing in the history to suggest any reason for the implication of the joint in the infection.

CASE II.—*Coxitis (Streptococcic); Empyema (Pneumococcic).*

Pte. H., aged 28, was operated on for empyema of left chest on March 9th, the pus showing micrococci encapsulated. The empyema had followed post-influenzal pneumonia, during the third week of which he began to have pain in the right leg. At time of operation on the empyema there was some fullness and pain in right hip, and extension was applied to limb. Ten days later there was fluctuant swelling occupying Scarpa's triangle and lower part of iliac fossa. Pus drawn off by syringe showed streptococci in film and in culture. The abscess was opened, and the cavity found to correspond with lower part of iliacus muscle, extending downwards and inwards behind femoral vessels. No gross communication with hip-joint discovered, but signs of coxitis were unmistakable, and left no doubt as to origin of the abscess.

The pathological relationship of the coxitis to the empyema is at first sight somewhat obscure. But primary suppuration of a joint is so uncommon that we are justified in considering it in the present case to be directly related to the chest condition, in which there was probably a mixed infection.

There was nothing in the history to explain the joint implication.

CASE III.—*Suppuration in Knee-joint during Alleged Cerebro-spinal Fever.*

Chief Officer T., aged 31, was admitted from another hospital to the isolation ward, under Lieutenant N. S. Gilchrist, on March 20th, with history of headache and fever beginning fourteen days previously. The condition had been diagnosed "cerebro-spinal fever," and turbid fluid obtained by lumbar puncture. The fluid did not contain any meningococci, but antimeningococcal serum had been injected. He did well as regards general symptoms, but the left knee had become swollen, and the condition was regarded as metastatic.

On the patient's admission to the isolation ward Lieutenant Gilchrist did not find any signs of meningitis. He aspirated the knee and withdrew thin purulent fluid containing many pus cells and a few scattered extracellular Gram-negative diplococci; culture failed. The following day aspiration was repeated and the fluid again showed many pus cells, but no organisms in film. Culture gave chains of streptococci, and many weakly Gram-positive bacilli not corresponding morphologically with any known pathogenic organism.

A history of gonorrhoea two and a half years previously was elicited, and there was doubt as to whether the knee condition was not a late sequela of gonorrhoea. As there were during his stay in isolation ward no signs of cerebro-spinal fever, he was transferred on March 27th.

We have here three cases in which joint infection occurred secondarily to a medical condition, and the points which come up for discussion are: (1) Symptomatology; (2) the exciting cause of the joint implication; (3) its influence on the course of the disease; (4) prognosis; and (5) the treatment of the joint condition.

1. *Symptomatology.*—It is not my intention to spend time on the symptomatology of synovitis, either general or with special reference to individual joints; I would, however, very briefly refer to the joints affected in the cases just mentioned.

In a patient suffering from an acute ailment such as pneumonia the occurrence of pain in a joint demands investigation. In the case of the knee inspection alone is often sufficient, the filling up of the natural hollows of the joint being an early feature. In the hip, however, marked swelling in the early stage is unlikely, and careful examination of this joint should be made. If coxitis be unrecognized in the early stage and allowed to go untreated, it may be found later that subluxation has taken place.

2. *Exciting Cause.*—It is usual to explain the implication of the joint as a metastasis occurring in a part whose natural power of resistance has been lowered; and in support of this explanation trauma is usually invoked. I do not deny that diminished power of resistance has allowed of a successful microbic attack; but even if such be admitted, it does not bring us much, if any, nearer to an explanation of the occurrence. We are still facing the problem of what has caused the lowering of the resisting power of the part.

In none of the cases related above was there any history of an injury to the joint; this is important when we bear in mind the very human tendency to hark back. It has always seemed to me that the story of precedent injury, frequently trifling, of which so much is made when viewed in the light of subsequent events, often rests on a slender foundation. We meet with it in acute cases, and also when investigating cases of tuberculous joint disease.

Even if we assume that secondary implication of a joint points to severity of the primary infection—large dose, or particularly virulent strain—we have still to answer the question as to the choice of location of secondary infection. Here we are in most cases thrown back again on theory. In the cases just given I am not able to throw any light on the causation.

3. *Influence on Primary Disease.*—It seems to me that the occurrence of joint infection must have an appreciable effect on the course of the disease. It may or may not be evidence of severity of infection; but it undoubtedly adds to the patient's sufferings, and imposes an additional tax upon his powers of recovery. Further, the special treatment of the joint lesion often imposes on the patient a degree of immobilization not only irksome, but, in the case of chest affections, harmful by increasing the risk of hypostatic congestion of the lung.

4. *Prognosis as to Joint.*—The prognosis with regard to the joint depends on the degree of infection and consequent reaction of the articular tissues. For example, arthritis involving the cartilages spells as a rule ankylosis; while synovitis, especially where the effusion is not purulent, may be followed by fairly complete restitution.

5. *Treatment.*—The joint must be kept at rest, attention being paid to the position of the limb. As a rule, pain causes the patient to avoid movement of the affected limb; but while Nature teaches him so much she does not go far enough, and it will usually be found that the position adopted is faulty. Such a fault is serious, and if not corrected will lead to contracture of muscles, requiring prolonged after-treatment. Should ankylosis occur, permanent deformity, with greatly impaired function of the limb, will result. In consequence of softening of ligaments, faulty position may end in pathological subluxation, with incurable deformity. The hip-joint is best kept at rest by extension weight and pulley. This prevents flexion of the joint, and takes strain off the capsule, thereby minimizing the risk of subluxation. The knee should be put up on a straight posterior splint; the elbow at right angles; the shoulder in abduction.

If distension by effusion occurs, aspiration, repeated if necessary, should be employed; if effusion be frankly purulent, drainage of joint is called for. Any operative procedure must be carried out with strict antiseptic precautions. It is necessary to emphasize this point, as observation shows me that the presence of pus seems to some minds to indicate that antiseptic precautions may be ignored. It should not be forgotten that to secure an aseptic result in a case of abscess is a proof of surgical skill greater than that required for the successful termination of a case of abdominal section.

I do not syringe out the cavity, but content myself with inserting a rubber drainage tube of suitable calibre. The discharge which comes from the tube drains into an abundant dressing of antiseptic gauze, over which is placed absorbent wool, and the whole secured with bandage. The gauze which I use is Lister's double cyanide, damped with carbolic watery lotion (1 in 20) and not otherwise sterilized.

No passive movement should be undertaken till the wound is healed, or, in the event of no operative measures having been required, till inflammatory signs have subsided, and then the utmost gentleness is necessary in order to minimize the risk of exciting a recrudescence. It must be borne in mind that the absence of signs of inflammation does not assure absence of pathogenic microbes; and well-meant efforts may set agoing a fresh attack of joint mischief.

My experience of vaccine treatment is too limited for me to express an opinion.

Discussion.

In the discussion which followed the reading of the paper before a medical meeting in a military hospital abroad the following remarks were made:

Colonel TUBBY (Consulting Surgeon, E.E.F.) said that in addition to its occurrence in pneumonia, secondary arthritis occurred in a number of diseases. He instanced diphtheria, dysentery (and in passing referred to a note on dysenteric arthritis by Captain Moorhead, R.A.M.C., in the BRITISH MEDICAL JOURNAL, March 25th, 1916), erysipelas, measles, scarlet fever, variola, typhus, typhoid, malaria, and Malta fever.

If it were realized that a joint cavity was in many ways comparable to a lymphatic sac, it would be easy to comprehend the implication of joints in diseases of infective origin. In health the synovial membrane secreted sufficient fluid to lubricate the joint surfaces. In disease the conditions entirely changed. A profound vasomotor disturbance was set up in the abundant vessels of the perisynovial tissues, and an extensive osmosis took place into the joint, converting it from a sac whose surfaces were closely approximated into a bag filled with fluid. In some diseases this fluid contained the causative microorganism, in others it was believed toxins only were formed, the products of bacteria in the synovial fringes and perisynovial tissues. Research on this point was necessary, because toxins should not be expected to set up purulent changes in the effusion. The difference in the amount of exudation appeared to depend upon the fact that many joints were not supported by muscles, and in some instances, such as the knee, elbow, and ankle, were practically subcutaneous. There was therefore very little resistance, mechanically, by the tissues to effusion, and its presence was evident at an early date—an important point in diagnosis and treatment. The absorption of effusion in superficial joints was often slow because they lacked, as in the hip and shoulder, the continual pressure effects of deep and powerful muscles. When, however, in these last-named joints an effusion persisted, it often became purulent, and ankylosis was a common result. The character of the effusion depended upon the exciting cause and the time it persisted.

Four conditions were found in joint infections: (1) slight synovitis; (2) fluid effusion; (3) the foregoing, with infiltration of perisynovial tissues; (4) destruction of cartilages. Prognosis was good in (1) and (2), doubtful in (3), and bad in (4), with this exception, that recovery in pneumococcic cases was often good, even if pus had formed, provided the case was recognized early and incisions made.

He referred particularly to bone and joint affections in typhoid fever, and suggested that similar lesions might occur in paratyphoid. Typhoid fever was frequently followed by lesions of spine, ribs, or tibia, and by arthritis. Of late years the lesion of the spine had attracted a deal of attention. It began in the medullary part of the bodies, and spread to the discs and joints. It came on during convalescence, and resembled Pott's disease, but was much more acute, a boss forming in two or three weeks. It was very amenable to treatment, rest in bed with the spine supported on a pillow causing, in nine to ten weeks, disappearance of the boss. The natural curve reappeared and function was restored in about nine months.

The surgeon must beware of sudden subluxation from softening and lengthening of ligaments. He was in favour of draining the knee-joint by opening from behind over the condyles after dividing the inner and outer heads of the gastrocnemius.

Major CHOYCE, R.A.M.C., believed that the pneumococcal variety of arthritis was much commoner than was generally recognized, not only as a secondary complication of definite pneumococcal infections, but also in certain of the exanthemata, etc., in which the presence of the pneumococcus would not be expected unless specially looked for.

Writers had usually classified the cases into primary and secondary; but really all cases were secondary to some distant focus, although that need not necessarily be in the lungs. The condition was a pyaemic manifestation due to settlement of pneumococci travelling in the blood from some focus such as the ear, throat, or lungs.

In children the arthritis was often of the so-called primary variety, in that it was not associated with pulmonary disease, though probably in a large proportion of the cases there was pneumococcal infection of the ear. In adults it was rare to find the lungs quite clear, even in the so-called adult primary type—that is, where the disease was not associated with lobar pneumonia.

All degrees between the slightest and the most severe occurred. If primary cases were defined to mean those in which definite lobar pulmonary pneumonia did not precede the arthritis, it was convenient to describe five clinical types, namely:

1. The ordinary "primary" case seen in children, often in infants. The child was apparently well, but might have otorrhoea, when an effusion rapidly appeared in one large joint—usually knee, shoulder, or hip. The overlying skin generally, but not always, became red; the patient's temperature rose to a moderate degree and showed a daily swing between about 99° and 101° or 102°. The child resented handling or movement, but the general and local disturbance was obviously less than occurred in streptococcal or staphylococcal articular infection.

2. The "primary" case seen in adults was rare, but more severe than in the child. Exquisite pain and tenderness, resembling that of acute rheumatism, might be present, but here again the constitutional symptoms were less than would be expected from the pyarthrosis. Careful examination and inquiry would generally elicit some evidences of pulmonary involvement, often abortive. He mentioned the case of a man admitted with pleuritic pain and slight local signs of bronchopneumonic type. These rapidly cleared up, but within two days he had pneumococcal arthritis of the right shoulder. In turn, at intervals of two days, the left hip and right knee became involved. The shoulder and hip cleared up with rest, etc., without surgical interference, but the knee-joint did not improve. It was aspirated and characteristic thin green odourless

fluid withdrawn. Temporary improvement was followed by recrudescence, and aspiration with washing out of the joint through two hollow needles was adopted. As this did not suffice, the joint was opened, a quantity of coagulated material washed out, and the wound closed. Improvement was slow but steady; bacteriological examination of his blood revealed the continued presence of pneumococci.

3. The so-called adult "secondary" type was severe and dangerous. It usually arose after the crisis of severe lobar pneumonia, but might occur earlier, and it might involve more than one large joint. After the crisis the temperature rose again, and the joint became hot, tender, full and painful on movement. In other cases the local signs were subacute, but the complication proved too much for the enfeebled patient, so that the prognosis of this type was always grave.

4. The variety in which the articular condition was but an expression of a general and overwhelming pneumonic toxaemia was rare. Intoxication might be so rapid and so profound that the patient neglected to draw attention to his joint at all. Such cases were always fatal. The temperature chart might show a plateau arrangement; in the other types the temperature swung daily between 99° and 103°.

5. A fifth variety sometimes seen had a more gradual onset, ran a slow, persistent, but ultimately favourable course, and was difficult to diagnose from tuberculosis.

Etiology.—Neither sex nor trauma seemed to have any causative influence. The disease was much commoner in infancy and childhood, and became progressively rarer as age advanced. It was relatively frequently associated with exanthemata.

The joint affected was usually the knee, shoulder, or hip—usually one of them, but sometimes all three. In mild cases the synovial membrane and subsynovial tissues alone were affected; they were reddened, juicy, and infiltrated. Frequently the periarticular tissues were oedematous and infiltrated. In bad cases the cartilages and bones might be eroded, and there was then danger of resulting limitation of function and even of ankylosis. The pneumococcus seemed to die out early in the synovial fluid, but could then sometimes still be found in the perisynovial tissues.

The fluid contained in the joint varied from a turbid, greenish, odourless serum to a thick débris containing fibrin that might be blood-stained in severe cases.

Local Treatment.—In mild cases rest alone sometimes sufficed, but aspiration was often necessary, and in many cases initiated a cure. It might be advisable to introduce two needles and to flush through with normal saline. If the inflammatory signs progressed, the joint should be opened, washed out, and closed; if that failed, drainage should be established, but the tubes removed at the earliest possible date lest secondary infection from the skin should occur. Movements, both passive and, later, slight active ones, should be instituted at an early date.

Before closing (Major Choyce continued) I should like to mention two other cases of secondary infections of joints at present in No. 19 General Hospital, which, though not pneumococcal, yet seem to me interesting. The first, a sergeant, is an object lesson on the dangers attendant on the use of beautiful gold American dental bridges. This man came in with a subacute arthritis of one knee with great effusion and pain and some elevation of temperature. In searching for a cause, we, of course, examined his beautiful set of teeth. At the edges of the bridges there was a blue line. So, having gained his consent, I removed £20 worth of work. Underneath was a collection of débris with the most appalling stench, which quite convinced the patient of the truth of my statement that it is practically impossible to keep bridges clean. His knee is now rapidly clearing up—effusion and pain have gone, and movements are returning.

The other case has caused me much speculation as to its etiology. The man was admitted with typhoid, which began with a good deal of bronchopneumonia. Then he developed staphylococcic pyelitis of one kidney, and this was followed by arthritis of one knee and hip. The effusion in the hip was sterile; that in the knee yielded staphylococci on bacteriological examination, and the same organism was found in his blood. The typhoid had been bacteriologically proved. Therefore he had both enteric and staphylococcal pyaemia. Is it possible that the second organism gained access to the blood through a typhoid ulcer? I am glad to say that the patient recovered sufficiently to be sent to England.

DEATH AFTER NITROUS OXIDE-OXYGEN AND SPINAL ANAESTHESIA.

BY WILLIAM E. ROBINSON, M.D.OXON.,
ANAESTHETIST TO THE WEST LONDON AND ROYAL WATERLOO HOSPITALS.

UNTIL I read the fatal case reported by Dr. W. J. McCardie in the BRITISH MEDICAL JOURNAL of July 22nd it had not occurred to me that there was a possibility of death from the continuous use of nitrous oxide gas and oxygen, so safe has it always seemed to me and so excellent a friend as an accompaniment to a spinal anaesthetic when the patient is nervous or likely to be subjected to the inconvenience of the Trendelenburg position during the operation. Yet following close on Dr. McCardie's case I have a similar fatality to report, occurring in my hospital practice on a particularly hot July afternoon.

The patient, a woman aged 45, had suffered from metrorrhagia for two years and was admitted to the Royal Waterloo Hospital for hysterectomy.

She was a fat, unhealthy-looking subject, very anaemic and very nervous. She had never enjoyed good health, having had many attacks of bronchitis. Her heart was apparently of normal size, but of this one could not be sure owing to the size of the breasts. The heart sounds were normal; there were no adventitious sounds. The pulse was small, rapid, and thready. It was not a nice case for a general anaesthetic, but one in which, in my opinion, an intraspinal injection followed by continuous gas and oxygen would give an excellent anaesthesia for the operation and a quick recovery afterwards. No morphine had been injected previously to the operation. At 3.15 p.m. I injected 0.6 c.cm. of stovaine (Billon), a solution composed of 10 cg. stovaine in 1 c.cm. of normal saline.

The anaesthetic acted almost at once, and at the same time the patient became even more pale; she was extremely nervous and begged me to give her something to send her to sleep. At 3.25, ten minutes after the injection of stovaine, I commenced giving gas and oxygen. This I give in an ordinary gas bag, into which are two tubes—one for oxygen and one for gas. After one bagful of pure gas, I turn in oxygen and gas and then start rebreathing. In this way the patient is quickly anaesthetized, and continues unconscious and of a good pink colour. The mixture in the bag I change about every five minutes. In the present case the bagful of gas was more than enough to anaesthetize the patient. I went further than usual—that is, to jactitation—but the admission of oxygen quickly relieved her, and she commenced the regular snoring breathing one is accustomed to.

The patient had meanwhile been got ready for operation; I therefore gave the signal for starting and the patient was turned into the Trendelenburg position. At the first incision the patient's blood was noticed to be extremely watery in appearance—a very pale red.

At 3.30—exactly fifteen minutes after the injection—the patient vomited. This vomit was due to the stovaine, evidence of toxicity which invariably comes on at the same time after every injection, and which usually passes off leaving the patient a little faint, but nothing more; when this period is over, I have never seen any further cause for anxiety in a subject anaesthetized in this way. The mask was removed from the patient during the vomiting, and she became partly conscious. The vomit over, I restarted the gas and oxygen, and the patient breathed beautifully, was a perfectly good colour, and apparently everything was as it should be. At 3.40, whilst the uterus was being pulled up from the pelvis, the patient again vomited. I again removed the mask and wiped out the mouth, but this time her breathing did not recover; she made a few swallowing movements, and that was all. Her colour was perfectly good; her pupils partially dilated. There was no obstruction by vomit in the larynx.

I immediately felt for heart beat, but there was none. Strychnine was at once injected, ether was poured into the abdominal cavity, and the heart was massaged through the abdominal wound.

Attempts at artificial respiration failed to arouse any response. It was clear the patient had died from syncope during the attack of vomiting, death occurring just under half an hour after the injection of stovaine, and after twenty minutes of gas and oxygen, during which there had been one break.

Post-mortem Examination.

Dr. R. C. Jewesbury reported as follows: Right lung adherent to chest wall; bases of both lungs congested. Heart large and very fat; walls extremely flabby and soft; no valvular disease. Liver very fat, weighing 58 oz. Uterus weighed 2 lb., showing a large fibroid in its anterior wall. Brain and other organs healthy.

Reviewing this case, it seems to me that the stovaine was not directly responsible for death, for the time limit when its toxicity gives cause for anxiety (fifteen minutes) had passed. The vomiting had ceased and the patient was apparently perfectly well and breathing regularly and deeply under gas and oxygen for ten minutes after this vomiting had ceased. The second attack of vomiting apparently caused the fatal attack of syncope; this vomiting was, I think, still due to stovaine, as I have seen other cases vomit a second time from this. Yet never has this second vomit been accompanied by the faintness which invariably accompanies the onset of the toxic symptoms of stovaine. It has always been in my experience more of the nature of a regurgitation—this, of course, in cases when no other anaesthetic but the spinal has been used. Shock from pulling up the uterus I consider out of court. The anaesthesia was perfect, and all sensory nerves must have been blocked.

This leaves us, therefore, with the nitrous oxide gas as more directly the cause of death. No doubt the patient's heart was acutely dilated on the induction to anaesthesia by the gas; this she recovered from, as her regular breathing and good colour showed. But, owing to her anaemic condition, the oxygen was not able to enter into her tissues to any great extent, and the nitrous oxide gas therefore acted on her heart muscle, causing it to fail at the critical moment, when, owing to the act of vomiting, there was again increased intrathoracic pressure and so a dilated right side.

Dr. Dudley Buxton throws out this conjecture in his criticism of Dr. McCardie's case, and from what I saw in my own I think he is undoubtedly right. We should, then, be guarded in our choice of gas and oxygen, for, though perfectly harmless in the majority of cases, yet given much anaemia there is a risk in adding it to a spinal anaesthetic.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF WOUNDS BY NASCENT OZONE.

THE treatment of wounds by nascent ozone is a method which has been in use for some time. Several years ago, on the advice and under the direction of Dr. Stoker (London), I treated by ozone, with complete success, a case of ethmoidal, antral frontal suppuration, in which a prominent rhinologist had advised a radical operation.

In August, 1915, when in temporary charge of a barge and tent hospital in France, I treated several wounds by this method, and in some instances the effects were extraordinary. After a very few applications the wounds, previously very septic, began to be more healthy, the discharge became much less viscid and fetid, and healing commenced.

The method of producing ozone is simple. Oxygen is passed from a cylinder through an "ozonizer." The latter consists of a glass tube containing inside it another glass tube, round which are wrapped copper wires. The copper wires are connected to a coil, accumulator, and rheostat, the latter graduating the strength of the current. As the oxygen flows through the tube and comes in contact with the wires it picks up two molecules and emerges as ozone. By means of tubing and metal Eustachian catheter it can then be applied to the wound.

I am convinced that the method is of wide application, and every nook and cranny of a deep wound can be reached in a way that no liquid antiseptic can possibly do.

Jedburgh. JOHN JEFFREY, M.B., F.R.C.S.E.

A CASE OF ABDOMINAL OR BILOCULAR HYDROCELE.

THE following case is a good example of abdominal or bilocular hydrocele, a condition of comparative rarity.

A patient in one of the ankylostomiasis wards of the C.M.S. Hospital at Old Cairo was found to be suffering from double hydrocele. The left sac communicated with an abdominal cyst-like tumour, the size of a small football, occupying a large part of the abdomen, its uppermost limit reaching a level slightly above the umbilicus. Communication between the scrotal sac of fluid and that in the abdomen was free. On palpating the one swelling, a fluctuation impulse was conveyed to the other, and pressure on either sac caused the other to increase in tensity.

The patient, an Egyptian peasant, aged about 30, spoke of having had a swelling on the left side of the scrotum since boyhood; he referred it to an injury sustained by a slip down the muddy bank of a small waterway. He, however, suffered little inconvenience until four years ago, when the swelling on the left side of the scotum began to increase, being followed ere long by a sensation of weight and pressure in the lower part of the abdomen; and eventually by the appearance of an abdominal tumour, which enlarged rapidly, eventually incapacitating the patient for agricultural work. The hydrocele on the right side also commenced about four years ago. After the patient had undergone a course of treatment for ankylostomiasis, the following operation was performed:

An incision about 3½ in. long was made over the swelling on the antero-lateral aspect of the left side of the scrotum, and the hydrocele sac was delivered from the wound after having been separated from its coverings. The neck of the sac was also freed as much as possible by introducing a finger into the inguinal canal and breaking down the adhesions by digital dissection. The isolation of the scrotal portion of the hydrocele, without rupturing it, was found to be a somewhat delicate process, as the sac was almost transparent and extremely thin in several parts; but to facilitate the removal of the abdominal portion it was regarded as important to guard against the escape of the fluid contents. A vertical incision was then made 1½ in. to the left of the middle line of the anterior abdominal wall, about 4½ in. long, its lower end being about an inch and a half above the crest of the pubis. Skin, superficial fascia, and the anterior sheath of the rectus were incised, the rectus muscle retracted towards the middle line, and a like incision made in its posterior sheath. The anterior parietal peritoneal layer was then opened, and also the posterior layer. These two membranes were lying in apposition, the posterior layer having been gradually pushed forward by the growing tumour, the space between obliterated by pressure, and the abdominal contents pushed upwards. The abdominal locule of the hydrocele was thus found to be retroperitoneal, which, judging from reports on several other examples of the condition, is usually the case. The upper sac was freed as far as possible in every direction, the adhesions yielding easily to blunt dissection, except at one or two points. The hydrocele was tapped with a trocar and cannula, the greater part of the fluid contents removed, and the puncture tied. Slight traction and sponge dissection sufficed to complete the isolation of the upper sac, which, after the remaining fluid had been displaced, was drawn through the inguinal canal and delivered through the scrotal wound.

The fluid removed measured 90 oz. It was very rich in cholesterine. On separating the vas deferens, which stretched over a large portion of the tumour, it was found to be extremely elongated, and likewise the vessels supplying the testicle. Moreover, as the blood supply of the latter seemed deficient, it was decided to remove it with the hydrocele.

The two layers of peritoneum were repaired with silk sutures, those of the rectal sheath with catgut, and the skin and superficial fascia of both abdomen and scrotum with silkworm gut and horsehair. A small drain was inserted in the scrotal wound and left for twenty-four hours. Primary healing took place and uninterrupted recovery.

The right hydrocele was dealt with some days later, the sac being excised in the usual way.

I was assisted in the operation by my colleague, Mr. R. B. Coleman.

F. O. LASBREY, M.B., Ch.B.Edin.,
P.M.O., Church Missionary Society's Hospital, Old Cairo, Egypt.

DR. FREDERICK CHURCHILL, of Cranley Gardens, South Kensington, left estate valued at £23,032, the net personalty being £22,701.

THE New York State Legislature has passed a bill providing that all pupils in the public and private schools of the State of 8 years of age and over shall have not less than twenty minutes of physical training every day.

Reviews.

HABIT IN RECOVERY FROM INJURIES.

THE second medical congress on accidents to workmen, which was held in Rome in 1909, offered a prize for an essay on "l'accoutumance aux mutilations," that is to say, the value of habit and practice in making up for the structural deficiencies left by the injuries. The prize was awarded in June, 1914, to Dr. JULLIARD, privat-docent in Geneva, and his essay is now published in a well illustrated volume.[1] Having been written before the war it was concerned with accidents in civil life, but the author has added a few pages on war injuries, founded on his experience as surgeon to a military hospital at Lyons. This section is fragmentary, and consists chiefly of records of a number of interesting cases.

The value of the book resides in the first two parts, which altogether occupy some 240 pages. There is a short, but useful, historical introduction, dealing mainly with the experience of Germany and Switzerland. Dr. Julliard then proceeds to consider factors in the production of functional adaptation to the new conditions due to the injury and the means by which recovery may be hastened. He insists on the advantage of early resumption of active exercises, and very strongly maintains that the best of all active exercise is work which the injured person was in the habit of doing before the injury. He excepts conditions in which there is evidence of definite inflammation; in such cases immobilization is essential, but they form the minority, and in the large majority the disability is due to what Dr. Julliard calls "residual symptoms." He enumerates them as follows: "Circulatory troubles, oedema, hyperaemia, stasis, etc.; nervous disturbances, such as hyperaesthesia, motor derangements, stiffness, ankylosis (more or less complete), atony, muscular atrophy, diffuse thickenings, fixation of tendons, etc.; trophic disturbances, thickening of the epidermis, etc." In such conditions the greatest benefit is derived from anything which favours the circulation, diminishes the impressionability of the nerve terminals, makes the ligaments and tissues more supple, and strengthens the muscles. "Nothing for this purpose is equal to the accomplishment of some sort of work, with its necessary efforts and contacts. No orthopaedic treatment is equal to this, because it is a biological treatment. When a workman one of whose members has been injured begins to work again he at first takes great care of the injured part. He makes up for the loss of its action by making the uninjured parts work for it. The injured part only begins very gradually and insensibly to take its share. . . . Little by little the salutary effects of the efforts made by the injured part is seen, and the result is the better because the effort is made with a useful object in view. Active mobilization of the part, the most potent treatment for the 'residues' of injuries, the great regenerator of the circulation, of suppleness and of strength, cannot be better attained than by the exercise demanded by the work to which the injured man has been accustomed." Dr. Julliard relates some remarkable instances of restoration of working power, drawn partly from his own experience and partly from official records. In a separate chapter he gives an analysis of the decisions of the German imperial insurance office as to the effect on earning power of a variety of injuries, and in another his own views on this matter.

The second part of the book deals in detail with the application of the first part to particular trades, and here again he quotes cases of men engaged in various occupations, but chiefly carpenters, cabinet-makers, and tinsmiths, who have been able, as judged by the wages they earned, to work as efficiently after as before the loss of fingers and other serious injuries; it is made clear that such results can only be attained when the man himself is eager and determined.

Although Dr. Julliard has little to say about gunshot wounds, his book makes its appearance at an opportune moment, for it deals with principles applicable to injuries however produced.

[1] *L'Accoutumance aux Mutilations.* Par Charles Julliard, Privat-Docent de Chirurgie à la Faculté de Médecine. Genève and Bale: Georg et Cie. Paris: Félix Alcan. 1916. (Med. 8vo, pp. 264; 148 figures. Fr. 8.)

SOME OBITER DICTA.

IN the preface to his book on *Post-mortem Examinations*,[2] Dr. WADSWORTH, Coroner's Physician of Philadelphia, expresses his confidence that "being somewhat in advance of the common level of *post-mortem* thinking and practice will not seriously injure its usefulness to all real students"; and states "that, in view of the variety and extent of his experience, he has not thought it necessary to avoid speaking with authority on his subject." It is a pity, therefore, that his pages are marred by many cynical generalizations, often in bad taste, about his professional brethren. Thus, on p. 28, he writes: "It is unfortunate that medical men come from the mass of the people rather than from some specially angelic tribe, for they bring with them all the characteristics of the outer world, and are therefore not always to be trusted." Again, on p. 136: "For years special ablations are done before surgeons are taught to hold their hands until they know what functions they are meddling with." Again, on p. 316: "I often wonder why it is necessary to have any lower conception for the medical profession than we have for what we regard as inferior arts." On p. 327, in speaking of what he conceives to be the functions of the duodenum, he says: "Now when the surgeon chops the duodenum he sometimes ignores these simple little matters, which not infrequently is good for business but very unpleasant for the patient." On p. 134 he complains that we are far too prone to explain scars on the skin as sequelae to a chancre. "Doubtless," he says, "alcohol and syphilis are responsible for many conditions, but the tendency to forget the little physiology one knows and attribute, often absurdly, all findings to these two savors more of the menstruating sex than of true science." Dr. Wadsworth's own authoritative utterances often take the form of unsupported statements. Perhaps the most remarkable are on pp. 132 and 133: "One does not find atrophic gastritis in a person with large thick lips. Nor does one give atropin in large doses to a person with yellow hair or cap the teeth of persons with red hair."

Nearly three pages are devoted to the importance of the neck. "The neck," we are told, "is a singularly neglected part of the body—neglected, in fact, by nearly every one, from the very clean young man, who develops boils when the collar grinds in the dirt, to the specialist, who fails signally when he tries to tell you about the hyoid bone"; and, further, "the mere fact that executions have been for ages carried out by operating on the neck shows how generally its importance has been recognized by the non-medical part of the world." The author has some original views about the cerebral circulation. He holds that the internal carotid arteries in their intracranial course clearly "massage the optic nerves by their pulsations, which appears to be a most important matter in the prevention of stasis in these nerves," and also that the relation of the pituitary body to them is more than suggestive of a regulator mechanism. In a book on *post-mortem* examinations many of the author's generalizations seem out of place. They merely obscure his subject.

A perusal of the work does not leave a clear impression of how the author considers a *post-mortem* examination should be made, but it would seem that it must not be in accordance with accepted teaching or recognized textbook description. The author scorns anatomical nomenclature as useless jargon, and considers many anatomical illustrations wrong, fanciful, and misleading. He has therefore been at great pains to prepare special photographs of sections of the body as it really is. The result is failure. The pictures are so overcrowded with detail as to be hopelessly obscure, even with the aid of the skeleton outlines provided to some of them.

Many, after reading this book, will agree with the author that some of his views are too radical to look well in print. Perhaps his long training in "cutting cases" has been responsible for his ruthless section of infinitives; such an effort as "to so far as possible point out" is an example. This is not a book for any one devoid of a sense of humour.

[2] *Post mortem Examinations.* By W. S. Wadsworth, M.D., Coroner's Physician of Philadelphia. Philadelphia and London: W. B. Saunders Co. 1916. (Roy. 8vo, pp. 598; 303 figures. 25s. net.)

A CHAMPION OF THE PAST.

DR. JAMES J. WALSH is well known by several works dealing with medical history, the relations of science, especially medicine, to the Church, and the general state of knowledge and art in the Middle Ages. In *The Century of Columbus*[3] he discusses the results achieved in every field of intellectual and social activity in the hundred years from 1450 to 1550. The work is divided into three "books," the first of which is devoted to the arts, the second to deeds, and the third to words. The arts include architecture, music, books and prints, and wood and metal engraving. Under the head of deeds come the discovery of America, explorations and empire building, the Reformation, the Renascence, and the fruits of a new spirit in physical science, medicine, and surgery. The book of the words gives an account of the revival of letters. Professor Walsh has covered the whole field of human endeavour with a learning at once adequate and accurate. It is impossible in a brief notice to discuss so encyclopaedic a book in detail. We can only say a few words on one or two subjects that may be considered to be of special interest to our readers.

The author gives a glowing account of the mediaeval hospital and of the skilled attention and tender nursing which the sick in it received. There is abundant evidence that the love of beauty showed itself in the designing of hospitals as of other buildings, especially in Italy, and the works of surgeons of the Renascence give proof of their knowledge and experience. But even on these *summa cacumina* there is often a darkness that can be felt, and on the lower levels medical practice was a compound of ignorance, superstition, and barbarism. Dr. Walsh quotes Sir Thomas More as saying that the arrangements in hospitals were so complete that practically every one who was sick preferred to be cared for in them rather than at home. But this was in Utopia. Dr. Walsh has no wish to mislead, for he quotes the whole passage from More's famous book. An unwary reader, however, might easily take it as a statement of fact. More was an early advocate of the municipalization of hospitals. That there was clinical teaching in the Middle Ages we know from pictures in medical books where doctors are shown demonstrating to students.

Dr. Walsh says that in the period of which he writes there were schools for the higher education of women in all the important cities of Italy. He believes that the educated women of the Renascence were model wives and mothers, who looked after their homes and designed and often made their own dresses, bought beautiful books, encouraged illuminators, embroiderers, and needleworkers, and in every way helped to give opportunities for the artist and craft worker. Dr. Walsh, in his eagerness to prove his thesis, seems to us here to rest his case on an obvious fallacy. The women he speaks of were very great ladies with abundant means and leisure for the cultivation of their minds and the promotion and patronage of art. What he does not prove is that feminine education was diffused among the classes who had to earn their own living, and that women were economically independent owing to this, as they are becoming at the present day. He is comparing two entirely different states of things. It is, of course, well known that, particularly in Italy, there were women teachers in the universities, even of such subjects as anatomy, but they were quite exceptional; they are remembered because they were exceptions.

Mediaeval medicine and surgery are treated in a very interesting way, the literature being surveyed and brief but adequate accounts given of the men who contributed to the progress of the healing art. Dr. Walsh succeeds in showing that the Middle Ages were by no means so "dark" as the good conceit we in these modern days have of ourselves has too readily led us to believe. On the other hand, his zeal as a champion of the past has, we think, betrayed him into exaggeration. We can heartily commend the book as a brightly written review of one of the interesting periods in human development. It contains eighty-nine photographs of portraits and other paintings, buildings, and various objects illustrating mediaeval life, which add to the beauty of the volume.

[3] *The Century of Columbus.* By James J. Walsh, K.C.St.G., M.D., Ph.D., LL.D., Litt.D.(Georgetown), Sc.D.(Notre Dame). Catholic Summer School Press, New York. 1914. (Roy. 8vo, pp. 420; 89 illustrations. 3.50 dols., postage paid.)

NOTES ON BOOKS.

DR. HALE WHITE'S *Materia Medica*,[4] now in its fifteenth edition, first came out in 1892. It possesses all the virtues possible in so small a book; it is well arranged, clearly and concisely written, and filled with useful information. It contains many hints on the prescription and administration of drugs that show the hand of an experienced physician. The present edition has been adapted to the new issue of the *British Pharmacopoeia* that came out at the end of 1914; this involves the inclusion of some thirty new drugs, and the exclusion of nearly a hundred old ones. Room has not been found for Dr. Dakin's new and efficient antiseptic chloramine. Dr. Hale White is to be congratulated on the vitality of his book no less than on the rapid exhaustion that lays low each successive issue.

Sir DYCE DUCKWORTH'S address on "The ordained limits of women's action in Christian society,"[5] written in well-balanced phrases and inspired by soundly conservative views of the place that should be taken by both women and men in the life of the world, contains a great deal of good advice that cannot be too often repeated. The two sexes are distinct; each has its special gifts, its special capacities, its special dignities. The author indicates the lines along which women's education and women's work should proceed, noting how greatly the sphere of women's activities has been enlarged by our experience of the war.

A lecture on *How to Keep Fit*,[6] delivered by Sir THOMAS ANDERSON STUART, Dean of the Medical School of the University of Sydney, to soldiers at a military camp, gives an admirably simple and practical account of elementary hygiene for the army. Microbes, flies, rest and sleep, the skin, the hair, the feet, boots, clothing, fresh air, water, food, alcohol, tobacco, and other all-important topics are touched upon, and sound advice suitable for the man in the street is given in brief and forcible style. The pamphlet may be warmly recommended to officers and others who have to give informal instruction to our soldiers in these all-important matters.

[4] *Materia Medica, Pharmacy, Pharmacology, and Therapeutics.* By W. Hale White, M.D.Lond., M.D.Dub.(Hon.), Lieutenant-Colonel R.A.M.C.(T.). Fifteenth edition. London: J. and A. Churchill. 1916. (Fcap. 8vo, pp. 724. 7s. 6d. net.)

[5] *Women's Place in the World.* An address delivered by Sir Dyce Duckworth, Bt., M.D., LL.D., F.R.C.P. London: Jarrold and Sons. 1916. (Cr. 8vo, pp. 32. 6d. net.)

[6] *How to Keep Fit: A Lecture to Soldiers.* By Sir T. Anderson Stuart, M.D., LL.D., D.Sc. Melbourne: A. J. Mullett, Government Printer. 1916. (Fcap. 8vo, pp. 36.)

MEDICAL AND SURGICAL APPLIANCES.

An Electric Probe.

THE CAMBRIDGE SCIENTIFIC INSTRUMENT COMPANY has made an electric bullet probe which it is believed will be of value in locating foreign bodies in a wound. In principle it is related to a telephone probe, to which it is objected that it is difficult to distinguish between the sound caused in the telephone when the probe strikes a foreign body, and the continuous noises which are at all times heard in the receiver. In the new probe contact with the foreign body is shown by the deflection of the galvanometer, which is the most important part of the appliance. A fine metal probe and a contact wire of the same metal are connected by flexible leads to the galvanometer. The contact wire is placed in the edge of the wound in good contact with the tissues, and the probe is employed in the usual way. Since both are of the same metal there is no difference of potential between them when they are inserted in the wound, and therefore no deflection of the galvanometer. As soon as the probe touches some other piece of metal in the wound a voltaic cell is formed, of which the metal foreign body constitutes one pole and the contact at the edge of the wound the other, the blood being the electrolyte. Consequently, a current flows through the galvanometer and deflects the pointer which swings across the scale. The galvanometer is strongly made and portable, and it is very sensitive; a very small piece of metal causes an obvious deflection of the needle. The probes are made in various thicknesses and are interchangeable. The probes and contacts and the portions of the leads which may come near the patient can be sterilized. The outfit with two probes and connecting leads costs £9 15s. We are informed that the instruments have been tested in several military hospitals with satisfactory results.

British Medical Journal.

SATURDAY, AUGUST 26th, 1916.

SCIENCE AND COMMERCE.

In commenting on the report of the National Physical Laboratory for 1915–16, *Nature* recalls the serious anxiety caused to those responsible for the supply of optical munitions by the shortage of suitable glass at the beginning of the war, for the industry of optical glass production had tended more and more to become a German monopoly. With the aid of a grant from the Privy Council Committee for Scientific and Industrial Research, a number of inquiries were instituted. So far the main work has been directed to the production of satisfactory pots, since one of the principal difficulties in the manufacture of optical glass lies in the choice of suitable material for the pots in which it is made. Similar work on heat-resisting materials, and generally on the behaviour of the rare earths and other substances at high temperatures, is of great importance in a large number of industrial processes, but for such work a technological laboratory on a large scale is needed, and will, it is hoped, be provided. Other research on chemical and other glasses has been done during the year by the National Laboratory, as well as by other institutions. The work is of the utmost national and scientific importance, and our scientific contemporary expresses the hope that the committee will spare no effort "to ensure that it is actively continued and extended, and that in the future no risk shall be run of this fundamentally important industry passing into foreign hands."

The committee is in a good position to achieve the first object, and the acquisition of scientific knowledge and the perfecting of technical methods will make the attainment of the second possible, but it will not do more; commercial organization is necessary, and also probably State action. As an example of what happens we may say that we had occasion a short time ago to make some inquiries as to a particular kind of glass, and found that though its formula was due to British research, and though it had been and perhaps is still being made in this country, commercial control was in the hands of foreigners.

The position with regard to the production of fine chemicals and synthetic drugs and the commerce in them is very similar to that in which the authorities of the National Physical Laboratory found the manufacture of optical glass. In commenting, in the Journal of August 12th, on the resolutions adopted by the Annual Representative Meeting recommending medical practitioners to avoid using drugs made in Germany or Austria if identical substances manufactured by ourselves or by our Allies can be obtained, and instructing the Council to bring to the notice of the Government the possibility of guaranteeing protection to firms willing to lay down plant to manufacture drugs and chemicals made in Germany before the war, we pointed out that while it was probably the opinion of the majority of chemical manufacturers that some form of Government assistance by tariff or otherwise was necessary, yet a considerable degree of co-operation among manufacturers is a more fundamental requisite for the establishment of the manufacture of synthetic drugs on a sound commercial basis.

It is probably owing to the resolutions of the Annual Representative Meeting and this comment on them that Dr. Sidney Barwise, Medical Officer for Derbyshire, has sent us a copy of a pamphlet on economics and the war[1] which he published last May. Dr. Barwise refers to the resolution adopted by the Chambers of Commerce of the United Kingdom, "that the strength and the safety of the empire lie in ability to produce what it requires from its own soil and factories," and compares it with a famous pronouncement of Alexander Hamilton during the American War of Independence: "Every nation . . . ought to endeavour to possess within itself all the essentials of national supply. These comprise the means of subsistence, habitation, clothing, and defence. . . . The possession of these is necessary to the progress of the body politic; to the safety as well as to the welfare of the society. . . . To effect this change, as fast as shall be prudent, merits all the attention and the zeal of our public councils; it is the next great work to be accomplished."

Far be it from us to enter upon the thorny controversy as to free trade and tariff reform, which excites a degree of bitterness in the extreme champions on either side difficult for persons of scientific training to understand, but we are entitled to call attention to the effect on the nation's health and virility of the exodus from country to town, due in part at least to the depression of agriculture and the fact that peasant proprietors in Great Britain are so few as to be negligible in any general view. One result of the fiscal policy of Germany has been to keep the people on the land and to encourage small freeholders; in thirteen years one and a half million acres were thrown into small holdings. A similar fiscal policy in France has had a similar result. Before the passing of the Méline tariff law of 1892 France imported 441 million francs' worth of agricultural produce; ten years later she was exporting an excess of 152 million francs' worth, peasant proprietors had increased and the tide of population was set back from the town to the land. In thirty years the import of cereals into Great Britain more than doubled while the population increased by less than a third. In the same issue of *Nature* as that from which we have already quoted there is a note on a recent report by Mr. T. H. Middleton, Assistant Secretary to the Board of Agriculture. He shows that it is not an empty boast to say that on each hundred acres of cultivated land Germany feeds seventy people, while Britain can only feed forty-five. According to this report, the two chief factors in the recent remarkable development of German agriculture are a settled economic policy and a well-thought-out system of agricultural education; coupled with these is the belief of the German farmer that he was essential to the community and that his land should not be allowed to go out of cultivation. Mr. Middleton states that the chief immediate cause of the increased productivity of German soil is the increase in use of artificial manures; twice as much nitrogen, one-third more phosphate, and five times as much potash are used in Germany as on an equal area of our cultivated land. The reason Mr. Middleton gives for this failure of the British farmer is want of education, but he thinks that this defect in our educational system is

[1] *Never Again. A Plea for a National Party with a National Economic Policy.* By Sidney Barwise. Derby: Harwood. (Price 6d.)

being remedied. There are, however, undoubtedly other causes, which might more quickly be removed, for the depression which has affected British agriculture during the last seventy and especially the last thirty or forty years.

MALARIA IN FRANCE.

RATHER more than a year ago we discussed the probability of any considerable outbreak of malaria in Flanders and France, and expressed the opinion that though certain conditions rendering it possible undoubtedly existed any considerable outbreak was improbable. The conditions which made it possible were the existence of *Anopheles maculipennis* in Flanders, and in many places in France, and the presence of Indian troops, among whom would undoubtedly be found some persons carrying the haematozoon. Among the conditions recorded as unfavourable to any large outbreak was the expectation that there would be no sufficient spell of warm weather. No outbreak occurred, but a certain number of cases were observed and were recorded in our columns by Lieutenants Reid and Humphreys and by Captain MacCormac. All the cases occurred towards the end of August or the beginning of September.[1]

The problem is now receiving some attention in France, and the Academy of Medicine has appointed a commission—consisting of MM. Laveran, Blanchard, Roux, Wurtz, and Mosny—to report on the prevalence of mosquitos in Paris and other parts of France. The suggestion arose out of a paper read by M. Wurtz, in the course of which he said that persons residing in certain parts of Paris had this summer been greatly annoyed by mosquitos, though as the insects belonged to the genus *Culex* they were not capable of transmitting infectious diseases. Professor Blanchard took up both points. He did not admit that *Culex* was incapable of transmitting diseases, and gave the discussion a wider scope by asserting that *Anopheles maculipennis* still existed all over France, and even in the suburbs of Paris. He recalled the historical fact that the larva of *Anopheles* was first described by Joblot in 1754 from a reservoir actually in Paris. He pointed out that malaria was at one time very widespread in France, and that though it had become uncommon it might reappear if circumstances favouring it were allowed to arise. Paris, he said, and the whole of France was in varying degrees in the condition called by the Italians "paludism without malaria," that is to say, the *Anopheles* existed but not intermittent fever. If an old malarial patient who supposed himself to be cured went to reside in a place where *Anopheles* persisted he might be the means of starting an epidemic, for though he no longer had febrile attacks, his blood might contain the gametocytes and would therefore be quite capable of infecting the insects, and they would infect mankind. At first probably the number of persons would be small, but the circle would be ever widening, and presently the disease would become epidemic. Professor Blanchard did not insist on the element of time introduced by this argument, but it is easy to see that it may be a factor of great importance. As an instance of what might happen even in Paris, he said that some years ago a female *Anopheles*, which had apparently survived the winter, had been found in the laboratory of the Colonial Museum in Paris, and that another had been observed at the Institut Pasteur early last April. M. Vaillard, after mentioning the cases recorded by British medical officers as having occurred on the Flanders front, went on to point out that among French colonial troops, from West Africa, Indo-China and Madagascar, and among colonial workers employed in munition factories there would be many chronic cases of malarial infection which would serve as reservoirs of the virus, and that *Anopheles* persisted in a sufficient number of places in France to give grounds for fearing a recrudescence of malaria in places formerly affected and its extension to others previously immune.

M. Mosny added the interesting statement that since the arrival of the colonial troops a number of centres had already been found to be in existence in France, and that in particular the Paris, Lyons, and Mediterranean Railway Company had had to deal with a large number of cases among men employed in the marshy country near the mouths of the Rhone. In a paper contributed to a later meeting of the Academy, Professor Étienne of Nancy gave particulars of a small recrudescence of malaria in the neighbourhood of that city of which he had obtained evidence. The patients came from the valley of the Seille, a sluggish, muddy river, often overflowing its banks, which runs a course close to the frontier and falls into the Moselle near Metz. *Anopheles maculipennis*, he stated, was known to occur in this valley, but he had not met with any case of malaria in the hospitals at Nancy since 1888, nor, with one exception in 1907, had he heard of any authentic cases until January, 1915. Since then he had observed six cases in which the clinical diagnosis was malaria, verified in two by the finding of the haematozoon (schizonts) in the blood; it was found also in the case observed in 1907, at Nomeny in the valley of the Seille. Of the cases under his own care one was quartan, three tertian, one continuous, and one remittent. They all occurred in January, February, or March, 1915 or 1916. One case had been bitten by many mosquitos during the fine days at the end of January and the beginning of February, 1916. As to the others, Étienne thought it possible that they had been bitten in the autumn, but that the disease did not show itself until some other trivial affection allowed it to develop and produce marked symptoms. The patients suffered from symptoms attributed to rheumatism before the true character of the disease declared itself. At about the same time a number of old malarial patients, colonial or African, suffering from recurrent attacks, were admitted into hospital in Nancy. He does not think it clearly proved that an attenuated form of malaria may not have persisted in the valley of the Seille before the war, but concludes that the facts suggest that if this be the case the anopheline mosquitos have recently been infected by a more virulent strain of haematozoon derived from chronic cases among the colonial troops.

It may be interesting to recall that fifteen years ago Nuttall, Cobbett, and Strangeways investigated[2] the geographical distribution of *Anopheles* in relation to the former distribution of ague in England, and showed that the disappearance was not due to the extinction of mosquitos capable of harbouring the parasites of malaria; they found *Anopheles*, indeed, in parts of England as to which they could obtain no record of the occurrence of ague at any time in the past. *Anopheles* occurred, however, in greatest number in low-lying land containing many ditches, ponds, and slowly flowing water suitable for its habitat and corresponding to the districts where ague was formerly prevalent. They concluded that the occurrence of ague is not a matter of the geographical distribution of *Anopheles* as much as of its numerical

[1] BRITISH MEDICAL JOURNAL, 1915, vol. ii, pp. 603, 906.

[2] *Journ. of Hygiene*, vol. i, p. 4.

distribution, and expressed their belief that their observations would explain the occasional occurrence of ague in out-of-the-way places, without making it necessary to assume that malaria-bearing mosquitos had been freshly imported, for, given suitable conditions of temperature and the requisite number of *Anopheles*, a malarious subject coming from other parts might well infect the local insects, which in turn would spread the infection to healthy persons.

THE PRESCRIPTION OF PROPRIETARY REMEDIES CONTAINING COCAINE.

WE have already on several occasions called attention to the unfortunate exception in the Regulation as to the prescription and sale of cocaine which made a special and, as we believe, wholly unnecessary concession to the vendors of proprietary medicines. The Regulation requires that cocaine shall be supplied only upon the written prescription of a doctor, and dispensed only by a person legally authorized to dispense such prescription, and further requires that the prescription must be dated and signed by the doctor, with his name, address, and qualifications, be marked "not to be repeated," and must specify the total amount of cocaine to be supplied on the prescription. The exception is that "where the medicine to be supplied on the prescription is a proprietary medicine it shall be sufficient to state the amount of the medicine to be supplied." The Regulation is understood to have been made because the habit of taking cocaine was spreading, and the evils of cocaine addiction were serious. The effect of the Regulation in bringing the sale of cocaine under control is diminished by the exception quoted. The amount of cocaine in a proprietary medicine is not, in the majority of instances, known to medical practitioners invited to prescribe such proprietary preparations. This is the case in respect of a certain "asthma remedy," the proprietors of which are issuing to persons who apply to them for the preparation draft printed forms for its prescription by doctors. Examples of these forms are in our possession. The preparation has, as a rule, been prescribed by the patient for himself in consequence of representations as to its efficacy as advertised by the proprietor, and before Regulation 40 B was made it was probably obtained by the very large majority of such persons, if not by all, without any medical prescription. Medical practitioners are now asked to give their express sanction to the continued use of a preparation containing an unknown quantity of cocaine, a drug which they have not prescribed to the patient on their own initiative. The objection of practitioners to prescribe preparations the composition of which is not made known, or to sanction their use, is general and, we believe, deeply rooted. The profession now has an opportunity of showing the strength of its conviction. The British Medical Association has done an enormous amount of work to give effect to what it believed to be the conviction of the profession. It procured the appointment of the Select Committee on Patent Medicines, and it is prepared on the first suitable occasion to do all in its power to further legislation recommended by that committee. If the profession now falls into the trap laid for it the strength of the demand for legislation for the control of secret remedies must be greatly weakened. We are quite aware that practitioners may be placed in an extremely difficult and invidious position in resisting the urgent solicitations of a person who has become accustomed to use cocaine for the relief of asthma or other conditions, but the profession has now a chance to live up to its principles by declining to prescribe remedies of which the formula is not disclosed, though the manufacturers may now be under the necessity of stating that a particular remedy contains cocaine. It is quite true that the action of the Home Office in making this exception is weak and illogical, but it has afforded to medical practitioners an opportunity of showing that they do not suffer from these defects, that they are wiser and stronger than our rulers, and ready, even at some personal inconvenience, to act in what they believe and know to be the best interests of the country.

WEST AFRICAN FEVERS.

THE fourth and final report of the Yellow Fever Commission has been issued.[1] The Commission was appointed by the Colonial Office in January, 1913, to study the nature and relative frequency of the fevers occurring among Europeans, natives, and others in West Africa, especially with regard to yellow fever and other non-malarial fevers in that country. The Commission held seventy-four meetings, including several laboratory ones, and also interviewed various people from abroad on the subject. Unfortunately the war greatly hindered its labours, and as a matter of fact has led to its early demise. Still, during the three years for which it existed, it collected much useful information, and has brought this together in an easily accessible form. Three earlier volumes containing reports received from appointed investigators and others have been issued at various times, and two of these were noted in the JOURNAL of March 18th, 1916. The final report (that now under consideration) is divided into five parts—Part I deals with the work of the Commission; Part II deals with the occurrence of various fevers other than yellow fever among natives and Europeans in West Africa; Part III is devoted to yellow fever; Part IV contains suggestions for further research and in regard to quarantine, the general conclusions at which the Commission have arrived, and also references to the services of investigators and others; Part V consists of appendices. The first general conclusion of the Commission is that the following fevers, other than yellow fever and malarial fevers, are met with on the West Coast of Africa—namely, typhoid, paratyphoid, pappataci fever, and (possibly) undulant fever and seven days' fever, and possibly also dengue fever in a sporadic form, but that there is no evidence of the occurrence of widespread epidemics of any of these fevers in recent times. We would point out, however, with regard to the statement that undulant fever may "possibly" occur on the West Coast of Africa, that cases from that area have been published on at least two occasions. The second conclusion is that malarial fever is the most widely spread of the fevers met with in West Africa. With regard to yellow fever, the conclusion is that it is endemic in the British and other dependencies on the West Coast of Africa, but no sufficient evidence has been obtained of its occurrence in the Republic of Liberia. The number of cases diagnosed in the British dependencies as yellow fever has not, it is stated, exceeded 60 in any one year during the last six years, nor 180 in all; but the Commission is of opinion that many more cases have occurred, and that probably the continuous presence of the disease is maintained by the existence of endemic foci and areas or otherwise, rather than by its almost universal prevalence amongst the native population. The native population is not immune to yellow fever, although, as a rule, when attacked, the natives suffer from a milder type of the disease than the Europeans. The Commission states that the nature of the virus of yellow fever remains unknown, and that there is no evidence that the disease has been brought to West Africa during recent periods from outside Africa. The Commission finds that epidemics of a disease have occurred in other parts of Africa presenting some features of a character similar to those met with in yellow fever, and that in these epidemics the mortality amongst the natives appears to have been much greater than

[1] Yellow Fever Commission (West Africa). London: J. and A. Churchill. 5s. net.

usually now occurs when natives of the dependencies on the West Coast are attacked by yellow fever. Further, the Commission has found evidence that a disease of uncertain nature, known to the natives by various names, as, for example, bayloo, uto enyin, or yellow eyes, prevails in certain dependencies, usually at a distance from the coast, but states that knowledge of the diseases, other than malaria, common amongst the natives, both children and adults, inhabiting the "bush," is very defective. Finally, the Commission points out the importance of a vigorous enforcement of anti-mosquito measures against all mosquito-borne diseases.

PITUITARY EXTRACT IN DIABETES INSIPIDUS.

OUR ignorance of the functions of the pituitary body was unlimited until it was first studied by Schäfer and Oliver in 1895. In 1901 Magnus and Schäfer found that extract of the infundibular or posterior lobe of the gland acted as a diuretic, and in 1905 Herring and Schäfer proved that this extract dilated the renal arteries while constricting the other arteries of the greater circulation. At the present time many pituitary preparations are on the market—proprietary drugs made for the most part from the posterior part of the gland—and the literature dealing with them is very extensive; their names are many, including hypophysin, pituitrin, infundibulin, and pituglandol. These extracts have been employed in the treatment of anuria or diminution of the renal secretion of urine, apparently with success. The polyuria which follows operative manipulation or disturbance of the posterior lobe of the pituitary body has been particularly remarked by Cushing, who is inclined to attribute many cases of either transient or lasting polyuria to increased secretory activity of the hypophysis. There can be no doubt, therefore, that polyuria is one of the effects of exhibiting pituitary extracts in both health and certain diseases. Oddly enough, its effect in diabetes insipidus is precisely the opposite, as was pointed out by Francesco of Venice in 1913. This author quoted two patients passing six or eight litres of urine a day, in whom pituitary extract reduced the urinary output to the more moderate figure of one or two litres a day. Rosenfeld has recently[1] put on record two cases of diabetes insipidus in which subcutaneous injections of 0.5 gram of pituglandol much reduced the output of urine. The particular interest of his communication lies in this, that in one instance the concentration of the urinary sodium chloride was much increased when the polyuria disappeared under the influence of the drug, while in the other case it was unaltered. The first patient, a well nourished woman of 38, passed some five litres of urine daily while on a diet containing little sodium chloride. The pituglandol injections reduced the urinary output to from one to two litres a day, while the percentage of sodium chloride in the urine rose from under 0.1 per cent. to 0.2 or 0.3 per cent., the latter figure being reached when more of the salt was added to the diet. The second patient, a man with cystitis, hypertrophy of the prostate, and renal disease, who was passing from five to seven litres of urine daily, passed a smaller amount of water while treated with pituglandol, without exhibiting any increase in the sodium chloride concentration, but rather the reverse. In the first patient administration of the drug by the rectum did not lessen the polyuria; she was a case of primary polydipsia, no doubt, or, as Rosenfeld puts it, of symptomatic polyuria, for the addition of common salt to her diet did not increase the secretion of urine. The second patient, however, exhibited primary polyuria, or true diabetes insipidus. Rosenfeld had evidence to show that his kidneys were incapable of secreting a more concentrated urine. Rosenfeld also quotes a third patient, a soldier, passing five or six litres of urine a day, on whose polyuria hypophysin and pituglandol were almost without influence. The conclusion reached is that these extracts influence polyuria by acting on some urinary (or polyuric) centre in the floor of the fourth ventricle; the centre diminishes the polyuria by increasing the capacity of the kidneys to secrete a concentrated urine. This action of pituitary extracts is but transient, lasting in favourable cases for only a few days.

[1] *Berl. klin. Woch.*, 1916, liii, 533.

VOLTAIRE AND VENEREAL DISEASE.

VOLTAIRE naturally found in venereal disease a subject for the satiric touch which he applied to everything, divine and human. But beneath the lightness of his manner there was always a real sympathy with suffering. The references to syphilis in his works are almost innumerable, but the *loci classici* are in *Candide* and *L'Homme aux quarante écus*. In the former he almost revels in his account of the consequences of the poisoned joys which Pangloss found in the arms of Paquette. Candide meets his old master, professor of "metaphysico-theologo-cosmologo-nigology" (the "nigo" in this ultra-Teutonic monster of word formation we take to be a playful disguise of *nigaud*), "all covered with pustules, his eyes lifeless, the end of his nose eaten away, his mouth awry, his teeth black, speaking with a throaty voice, tormented by a racking cough, and spitting out a tooth at every effort." The unlucky philosopher, although confessing that the pleasures of paradise had been followed by the tortures of hell, still clung to his doctrine that all was for the best in the best of all possible worlds. Syphilis, he argued, was a necessary and indispensable ingredient in its composition, for "if Columbus had not caught on an American island that disease which poisons the source of generation, which often hinders generation, and which is evidently opposed to the great end of Nature, we should not have chocolate or cochineal." Pangloss goes on to describe how the disease had spread throughout Europe, especially in those great armies composed of honest mercenaries who decide the destinies of states; it might be assumed that when thirty thousand soldiers fought in pitched battle against an equal number of men there were about twenty thousand on each side afflicted with the pox. In *L'Homme aux quarante écus* Voltaire again dwells on the part in the spread of the disease played by armies. He relates the piteous story of two girls living in a village where nothing was known about syphilis and where "people made love with the security of innocence" till troops were quartered there, when at once sin brought suffering into the little paradise. Severe as the disease was in the eighteenth century, the treatment, according to Voltaire, was almost as destructive. The abuse of mercury cost Pangloss an eye and an ear. The heads of the girls were swollen like balloons for six weeks, they lost half their teeth, their tongues stuck out "half a foot," and they died of chest disease within six months. The surgeon-major of the regiment said that the parliament of Paris was the first to make an ordinance for the suppression of syphilis; this was in 1497, when all persons suffering from the disease were forbidden to stay in Paris under pain of the rope. But as it was not easy to get legal proof of the guilt the ordinance had no effect. He added that the scourge instead of abating was spreading everywhere. Nor was it becoming less dangerous. Asked whether there was any means of suppressing the contagion, the surgeon-major said the only way would be that all the princes of Europe should form an international league as in Godfrey de Bouillon's day. A crusade against syphilis would be much more reasonable than those against Saladin and the Albigenses. It would be much better to combine in a war against the common enemy than to be continually watching for an opportunity of laying waste each other's countries and covering the fields with corpses. Dr. Dubois-Havenith, who called attention to this passage of Voltaire in a communication made some years ago to the Medico-Chirurgical Society of Brabant, said that

the organizers of the two international congresses held at Brussels with the participation of all governments of the world to study the prophylaxis of venereal disease believed that the first idea of such international action had come from Professor Wolff of Strassburg. But Wolff had been forestalled by Voltaire, whose suggestion, which had remained a dead letter for more than a century, was revived at these conferences. Voltaire's view that armies are potent factors in the diffusion of syphilis is said to have found confirmation in the present war. At a recent meeting of the Académie de Médecine, Gaucher stated that his observations had convinced him that in France and the other belligerent countries, syphilis was twice as prevalent as before the outbreak of hostilities. Brócq had already uttered a note of warning on the same subject. Among the many projects for the betterment of the world after the war not the least useful would be to extend the international crusade against the insidious disease which is sapping the health of the men and women who are to repeople a devastated world.

DENTISTRY IN THE GERMAN ARMY.

At a meeting of surgeons and dentists held a few months ago in Berlin, Generalarzt Schultzen gave an account of the organization of the dental service in the German army. The work fell into two main divisions—the treatment of wounds of the jaw, which was the most important, and the everyday treatment of soldiers' teeth, including the making and fitting of artificial teeth, to render the men fit for active service or employment on war duties. The incidence of wounds of the jaw had, he said, far exceeded expectations, with the result that five dentists had to be attached to each army corps, although, under an arrangement made in 1907, only one dentist was provided for each. Dentists were appointed to military hospitals where adequate facilities were provided for skilled work, and were employed also to a certain extent nearer the firing line, when the fighting assumed a stationary character. In fracture of the jaw, the primary object of the dentist was to immobilize the fragments in order that the patient might be sent on at once to a special jaw hospital at home, where extensive operations could be undertaken. About 1,000 dentists were employed by the army on the lines of communication and at home. The organization had worked smoothly. It had been hoped that, owing to the supervision and treatment of school children's teeth, the teeth of the recruit would be found on the whole to be sound. But between the school age and the military age there was evidently time enough for neglect of the teeth to provide plenty of work for the army dentist.

THE IMPERIAL CANCER RESEARCH FUND.

The annual report for 1915–16 of the Imperial Cancer Research Fund shows that the effect of the war has been still further to curtail the activities of the laboratory. Only the director (Dr. J. A. Murray), Dr. Cramer, and three laboratory attendants are left out of a total permanent staff of twelve. The laboratories have also lost the services of two Japanese medical men who had been working for some time in them. The director has undertaken to report on pathological specimens sent from France in connexion with the medical history of the war, and the arrangements for the preservation and transmission of these specimens are stated to be working satisfactorily. The offer of Dr. Miles Johnston, of Ramsgate, who is over military age, to assist the director has been accepted. In accordance with the practice of the committee to afford material for research for investigators in other laboratories, animals inoculated with tumours have been supplied to Dr. J. C. Mottram and Dr. S. Russ, of the Middlesex Hospital Cancer Research Laboratories, to Dr. A. Paine, of the Cancer Hospital Research Institute, and to Mr. S. G. Shattock, at St. Thomas's Hospital. An offer has been accepted from Dr. F. C. Wood, Director of the George Crocker Special Research Fund, to take over various duplicates from tumour strains and to continue their propagation, so that in the event of any damage to the laboratories by air raids the strains should not be lost. The effects of the war are reflected also in the short report of the director, which summarizes briefly the papers published during the year. A preliminary account has been published of the transplantable guinea-pig tumour now being propagated in the laboratory. This growth, which in the primarily affected animal had the structure of an ordinary lipoma, has become rather more cellular on continued propagation. The cellular changes leading to the appearance of fat in the tumour cells show this to be a true differentiation, and not a degeneration, and are initiated by alterations in the mitochondria or Altmann granules. Experiments have been carried out to test the validity of the explanation of the phenomena of the Abderhalden reaction by the absorption of the antiferment of the serum. It was found that the relative richness of the serums of the dog, rabbit, guinea-pig, rat, and man in antitryptic substance corresponded with the results of Dr. Bulloch's experiments, and that the prepared Abderhalden substrates adsorbed the antitryptic substance from the serum powerfully. The explanation, therefore, harmonizes satisfactorily with both sets of observations.

ATTENDANCE ON DEPENDANTS OF SAILORS AND SOLDIERS.

The Naval and Military Dependants (Medical Treatment) Committee, of which the Duke of Devonshire is chairman, announces that the scheme for providing free medical treatment, including medicines, to dependants of soldiers and sailors has come to an end. At its inception the National Relief Fund Committee undertook to bear the cost of the medicines provided under the scheme, but the duties of that fund relating to naval and military distress have now been transferred to the Central War Pensions Statutory Committee, which does not see its way to provide the funds necessary for the continuance of the scheme. The Duke of Devonshire therefore states that his committee has no option but to discontinue it. A circular letter containing this intimation is about to be addressed to the individual doctors who have taken part in the scheme, and in it the Duke of Devonshire expresses the thanks of his committee for the services rendered in connexion with the scheme. The demands, he goes on to say, upon the services of members of the medical and pharmaceutical professions involved by the scheme have been considerable, and the value of the services have been enhanced by the fact that they have been given during a period of extreme pressure. The Duke expresses the committee's appreciation not only of the generous spirit which prompted the professions to offer their gratuitous services in connexion with the scheme, but also of the manner in which they have co-operated with each other and with the committee to ensure the smooth working of the scheme. The Duke has also addressed a letter to the British Medical Association, thanking it for the active part it took in connexion with the scheme, the preliminary arrangements for which in themselves, he says, necessitated considerable labour on the part of the Association, while in addition substantial assistance has at all times been forthcoming from the Association in matters connected with the scheme. The Duke concluded by conveying to the Association the thanks of the committee for the assistance so readily given to it in its administration of the scheme.

THE MESOPOTAMIA INQUIRY.

THE first sitting of the Statutory Commission to inquire into the operations in Mesopotamia was held at the House of Lords on August 21st, under the presidency of the chairman, Lord George Hamilton. The Commissioners have announced that in view of the extremely private nature of the documents and of the oral evidence which will be taken, its meetings will be conducted in private. The Commission began by taking the evidence of Major-General Sir Edmund Barrow, Military Secretary to the India Office, who gave a general survey of the history of the Mesopotamia expedition. His evidence was not concluded on the first day. The Commission sat again on August 22nd, and thereafter adjourned for a fortnight "in order to master a number of documents prior to taking up the medical side of the inquiry." In the House of Commons, on August 22nd, Mr. Gwynne asked what arrangements were made for the provision of drinking water for reinforcements arriving in Mesopotamia, and whether it was the case that in many instances men went to the nearest pool and drank water, the result being that they contracted cholera and enteric or other fevers. The Secretary of State for War, in his reply, said that he assumed that so obvious a precaution against disease as the provision of proper drinking water had been taken.

WE regret to announce that Dr. T. G. Brodie, F.R.S., Professor of Physiology in the University of Toronto, died suddenly in Hampstead on August 20th.

Medical Notes in Parliament.

War.

Medical Students.—On August 21st Mr. Snowden asked what the present policy of the War Office is as to the calling up of medical students for military service; and if students are now permitted to continue their course of training for the medical profession? Mr. Forster replied as follows: Under the present arrangements medical students in their fourth and fifth years, including those third year students who passed a professional examination at the end of March, 1916, are not called to the colours, provided they are enrolled in an Officers' Training Corps. Where such students are not attested an exemption is required from the tribunals, but the military representatives support applications by such students. As the hon. member is doubtless aware, full-time students in universities and university colleges and teaching establishments recognized by the Board of Education who are not passed as fit for general service are not at present called to the colours, and arrangements are proposed by which second and third year medical students in this class who are at present serving shall be allowed to return to their professional studies.

Treatment and Training of Discharged Disabled Soldiers.—Major Astor asked the Chancellor of the Exchequer on August 17th whether, in view of the fact that under Section 3 (1) (*j*) of the Naval and Military War Pensions Act Parliament has placed on the Statutory Committee the duty and responsibility of making provision for the health and training of discharged disabled soldiers, and in view of the importance that suitable medical and surgical provision should be made available without further delay for the large number of men already needing special treatment over and above what the ordinary general practitioner can give, it is to be understood that the £6,000,000 recently promised to that committee from the Exchequer is to be available towards these purposes or whether the necessary expenditure of the committee in carrying out this duty is to be provided from the Exchequer in some other manner; and, if so, how and when. Mr. Hayes Fisher (who has been deputed to answer questions affecting the War Pensions Statutory Committee) replied as follows: "It is not the intention that the £6,000,000 (though calculated on the estimated cost of pensions) shall be earmarked to the payment of pensions, and the Statutory Committee will have power to expend it on any other of their statutory functions."

Medical Examination of Recruits.—Mr. Edmund Harvey asked, on August 16th, whether any detailed physical standard had been issued to the various army medical boards to ensure that cases should be dealt with on uniform principles, and in particular whether any instructions had been issued to secure a uniform method of dealing with organic diseases, such as diseases of the heart. The Financial Secretary to the War Office said that the physical standard was fixed for each of the categories, and that this standard was determined by the nature of the duties assigned to the particular category. Apart from this, conferences were from time to time held to secure co-ordination between the work and practice of the different boards. The Deputy Directors of Medical Services of commands were responsible for inspecting from time to time the work of examining recruits.

Hospital Ships.—In the course of a reply to a question as to the transport of sick and wounded officers granted leave to England from Mesopotamia, the Financial Secretary to the War Office stated that it was not possible to provide hospital ships in Egypt to meet the Indian hospital ships, and that patients from India had to be transferred to hospitals in Egypt until they could go on. There had been a shortage of hospital ships in the Mediterranean lately owing to the heavy requirements arising from the operations in France, but this has now been remedied.

Antityphoid Inoculation.—Mr. Chancellor has asked a question in which he implied that men who refused to submit to antityphoid inoculation were subjected to constant bullying and insult by army medical officers and regimental colonels, and that inoculation had produced a great deal of debilitating sickness. Mr. Forster in a written reply, on August 21st, said that he had not heard of the bullying mentioned nor of any dissatisfaction, nor that inoculation produced a great deal of debilitating sickness unless the slight reaction which was not unusual was so described. Inoculation was not compulsory, but its benefits had now been so completely proved that the vast majority of officers and men availed themselves of the opportunity of escaping enteric fever.

Alcohol Rebate to Hospitals.—In supply, on August 15th, a sum of £10,000 was voted to meet grants to voluntary hospitals in respect of duty on spirits. The grant is intended to reimburse hospitals for payment of duties made in respect of spirits contained in or used in the preparation or manufacture of tinctures and other articles which contain spirits.

Asylum Accommodation.—Sir William Byles asked a question on August 21st as to the amount of overcrowding in asylums, whether any further reduction was proceeding or was in contemplation, and what was the present proportion of doctors to patients in the county asylums which remained available for the care and treatment of their original inmates. Mr. Brace said that the amount of overcrowding varied in different asylums, but expressed as an average it might be stated to be 17 per cent.—that was to say, there were 117 patients in wards which were normally intended for 100. The number of beds by which the total accommodation of county and borough asylums in England and Wales had been reduced by the use of certain asylums as war hospitals was 15,750. No further reduction of accommodation was now proceeding or in contemplation. The present proportion of doctors to patients in the county and borough asylums in use as such was 1 to 390.

Epizootic Abortion.—In the course of a reply to Sir J. Spear, Mr. Acland said that the Board of Agriculture hoped that the arrangements for the supply of vaccine from the Board's laboratory for the vaccination of cattle against epizootic abortion would be complete at no distant date. A certain amount of vaccine was obtainable at the present time on application to the Board's office.

OUR BELGIAN COLLEAGUES AT HOME AND ABROAD.

THE EXECUTIVE COMMITTEE.

A MEETING of the Executive Committee was held on August 9th. Since the last committee meeting on June 8th the books of the society have been audited by Messrs. Crewdson, Youatt, and Howard, and the following cash statement issued:

Cash Account from December 1st, 1915, to June 30th, 1916.

Receipts.	£	s.	d.	*Payments.*	£	s.	d.
December 1st, 1915—				June 30th, 1916—			
To balance as per last account	15,608	12	0	By relief	2,562	11	10
				,, clothes	57	0	10
				,, administration expenses	12	9	3
June 30th, 1916—					2,632	1	11
Donations	305	8	5				
Interest received ...	528	3	10	Balance at bank, £1,945 12 3			
				Treasury Bills at cost, £11,864 10 1	13,810	2	4
Total	£16,442	4	3	Total	£16,442	4	3

The donations lately have been few and small, apart from a (second) generous gift of £100 from the Society of Apothecaries. The total sum now received, including donations, interest on deposit, and interest on Treasury bills, amounts to £19,508 13s. 2d. The sum of £800 is being sent monthly to Belgium. Four such amounts have already gone, and receipts have been received for three. There is always a certain amount of delay in the receipt of these documents. The expenditure in other directions has been low, only £44 2s. having been spent on relief, £20 7s. 4d. on clothes, and £7 6s. on the repairing of instruments.

THE WAR.

THE FIXATION OF EXTENSION APPLIANCES.

On occasional visits during the past few weeks to one of the base hospitals the writer has had opportunities of observing the value of a means of attaching extension to limbs which was introduced at this hospital by one of its surgical specialists (Major M. Sinclair) some little time ago, but does not appear to be familiar elsewhere.

The distinctive features of the method are that union between the extension band and the limb is obtained by means of a substance which is applied primarily to the latter instead of to the former, and that this substance, unlike either gutta-percha or resin, is mainly of animal origin and hydrophilic.

This substance consists of 50 parts each of common glue (or gelatine) and tap water *plus* 2 parts glycerine and 1 part each of calcium chloride and thymol.

The glue thus formed is used in the following way: After being warmed in a hot water bath to a suitable temperature—that is to say, until it is quite fluid—it is painted with a large brush, or applied with the hands, on the parts of the limb to which adhesive plaster would ordinarily be fixed for the purpose of attaching an extension device. A fourfold strip of dry gauze is then pressed upon the painted part of the limb and a very thin covering of cotton-wool is spread on the top to absorb any glue that may pass through the meshes of the gauze. Finally—though this is not absolutely necessary—the limb is bandaged to keep the gauze in place until the composition has had time to become quite solid, this usually taking five or six minutes.

Gauze fixed to a limb in this way enables tension to be applied quite as effectively as any form of strapping, yet does not seem to irritate the skin; also, although the limb undergoes no preliminary shaving the gauze can be removed without any pain.

The explanation of these effects seems to be partly physical, partly chemical. In the first place, the pull on the skin set up by the gauze is much more evenly distributed than that of strapping, because the union of the liquid glue with the skin is much more intimate than that effected by bringing into contact with the skin the sticky surface of gutta-percha or other adhesive plaster. In the second place, the composition being chemically hydrophilic it allows the natural transpiration of the covered skin to proceed unchecked.

A further considerable advantage of the method, though not one which, surgically speaking, is of any importance, is that it is a much less expensive process than that of using gutta-percha or equivalent strapping. At present prices sufficient gutta-percha strapping to make a leg stirrup seems to cost about 4s.

There is, of course, a definite object in each constituent of the substance in question. The thymol, for instance, serves to cover the odour of the gelatine, the calcium chloride increases its hydrophilic properties, the glycerine prevents it becoming brittle.

Foot Extension.

The success of the method described has led in its turn to the introduction at the same hospital of a means of keeping up extension in cases in which the soft tissues of the leg are so damaged as to offer no suitable surface for fixation by strapping or its equivalent. To meet the needs of such cases Robert Jones applies the extension to a wooden footpiece or sole, which is attached to the foot by a laced piece of leather shaped like the upper of a boot. This plan well secures the immediate object in view, but it is found out here that if the extension has to be maintained for any considerable time there is a strong tendency for the skin over the tendo Achillis and the instep to become sore. Consequently it has become the practice at the hospital in question to fix the foot to the footpiece in the following way:

A number of bands, each about half an inch wide, are cut out of flannel and folded on themselves so as to form a series of loops. A small metal D or ring is next inserted into each of these loops and the free ends of each band are then glued perpendicularly to the skin of the foot in such fashion that the rings or D's form a kind of fringe projecting just below the edge of the sole, and extending from the heel to the level of the toe-joints along its inner and outer sides. The bands may be cut in the first instance all the same length, but subsequently must be sufficiently shortened to give each of them a good grip on the foot without reaching the skin over the instep and middle line. Seven or eight loops on each side of the foot and one at the middle of the heel extending upwards to just below the attachment of the tendo Achillis usually suffice. As soon as the glue has become quite solid (within five minutes) the extension footpiece is placed against the sole of the foot, and fixed to it by passing a series of flannel laces through the opposite rings. As much extension as is desired can then be applied and maintained without pain and without irritation of the skin.

Other Uses.

It is obvious that the composition and gauze mentioned may be applied in any condition in which adhesive plaster would otherwise be used for the same purpose, but one additional use to which it is put at this particular hospital may be mentioned. In cases in which it is desired to prevent foot-drop, but to leave the ankle-joint freely mobile, it is used to sling the foot from a gallows which is attached at an appropriate level to the Thomas splint employed, and has legs projecting downwards so as to keep the splinted limb from touching the bed.

In the course of this note it has been indicated that the adhesive power of the composition described is equal to that of any ready-made plaster. This is an understatement, for the adhesive power is so great that in fractures of the thigh the limb can be extended to its natural length when desired by pulling on pieces of gauze which are glued only to the condyles, and touch the limb nowhere else. Nevertheless it can be removed as stated without pain, for if necessary the composition can rapidly be reliquefied by the application of a fomentation.

This composition, in short, is a real glue, and not, like that of Heusner, a strong resinous varnish. Being a true glue it is easily burned; when it has to be heated, therefore, its container must always be placed in a water bath. Any ordinary saucepan will serve. Preliminary shaving of the limb is superfluous.

THE GERMAN MEDICAL CONGRESS IN WARSAW.

(Continued from p. 28.)

Typhus Fever.

In opening a discussion on typhus fever, Professor Brauer[1] gave a comprehensive survey of the pathology and course of the disease. It was of importance, he said, that the skin should be thoroughly cleaned at the onset of the disease so that the subsequent rash and scaling might be closely observed. Bradycardia and arrhythmia were common during convalescence owing to organic injury to the muscles of the heart. An examination of the blood was of little diagnostic value, and during the status typhosus complete insomnia and stupor, or a tremor of the whole body like that of multiple sclerosis or of paralysis agitans, were common. The most important sequel was gangrene of the feet. The disease was also sometimes accompanied by other infections such as influenza, recurrent and typhoid fever. When the Central Allied Powers entered Serbia the epidemic had died out except in remote hamlets and mountainous districts.

Relation of the Louse to Typhus.

Professor Jürgens maintained that typhus was now well within the control of man. It could be conveyed from one person to another only by the agency of the louse, but the processes occurring between infection and the outbreak of the disease were still unknown. He asserted that the louse could become infected by man only during the acute stage of the disease; during the incubation period, and again during convalescence, infection from man to the louse did not occur. He argued that the parasites of typhus reached a certain stage in their evolution in the human blood, and that their further evolution was completed only in the louse, attaining in that animal a stage capable of again infecting man. The louse was the most usual mode of

[1] *Muench. med. Woch.*, May 23rd, 1916.

infection, although it had not been proved that other modes did not exist. He related an instance in which patients suffering from typhus, after being freed of their lice, had been kept in barracks with healthy persons. The disease did not spread, although the epidemic continued its course unaffected outside the barracks. The high mortality from typhus in Serbia was largely due to exhaustion, hunger, and exposure, as well as to diphtheria, of which there was an epidemic at the time.

The Biology of the Louse.

Professor Hase, in speaking of the great powers of resistance of the louse to chemical and physical agents, recalled the fact that it could live for three to four days at a temperature 5° C. below freezing. The nit survived the action of a 5 per cent. solution of formol for twenty-four hours, and it required an hour for hot formalin vapour or a 3 to 5 per cent. solution of kresol soap to kill it. The louse and its eggs were, however, most sensitive to heat. It could absorb only warm, circulating blood. Not every bite was noticed, nor was every bite successful. The process of sucking blood often lasted hours, during which the louse was completely insensitive to the amputation of its feelers and legs. The record number of lice removed from one person at once was 3,800. Many persons became so used to the bites of the louse that they no longer noticed them.

Munk said that the duration of the fever was almost the same in every case, irrespective of its severity. The great fall in the blood pressure explained the livid discoloration and the changes observed in the rash in the worst cases. Disturbances of the speech were frequently observed as a result of muscular weakness; trismus and severe contractions of certain groups of muscles also occurred.

The Infecting Organism in Typhus.

Toepfer stated that he had, independently of Rocha-Lima, observed certain bacteria-like bodies in lice, infected by keeping them on the skin of patients suffering from typhus, but not in more than 500 others. During the first days the lice contained no parasites, after the fourth day some of them were infected, and after the seventh and eighth days all the lice were severely infected. With these lice he succeeded in provoking a characteristic febrile reaction in guinea-pigs resembling that observed when they were inoculated with patients' blood. Rocha-Lima gave an account of the micro-organism *Rickettia provazekii*, which he associated with typhus. Stempel described certain spindle-shaped, brown structures, scarcely as long as 2 μ, which he had found in the intestines of infected lice after making serial sections and staining by Giemsa's method. He thought these bodies represented protozoa, not decomposition products of the blood cells. He had found similar bodies in the leucocytes in typhus. Schittenhelm said that during an attack of typhus the total number of leucocytes was at first normal or raised. The eosinophile leucocytes first declined, then increased in number, whereas the polymorphonuclear leucocytes first increased and then slowly decreased in number. Of the cases among civilians, more than 50 per cent. occurred in persons between the ages of 12 and 20. Gruber said that he had observed on the second or third day of the disease, after a sudden rise of the temperature, a fall lasting one day. From the report it would seem that Gruber was not aware that such a fall of temperature is usual in the early stage of typhus, although it does not commonly occur so early as the third day, on which the first acme is commonly reached. Gruber also said that later, in the status typhosus, notably after the tenth day, there might be attacks of apnoea (*Atempausen*), during which sugar was demonstrable in the urine.

Diagnosis and Treatment of Typhus.

Rostoski said that the method of hyperaemia described by Dietsch was useful in deciding whether a patient had recovered from typhus or not. After hyperaemia had been induced, pigmented patches again became cyanosed, and appeared at points where they had previously been invisible. Paraesthesia and anaesthesia of the hands sometimes continued for months after convalescence. Zülzer stated that he had found the spleen and liver enlarged early in the disease, and had demonstrated this phenomenon in persons otherwise healthy, but in contact with patients suffering from typhus. In some abortive forms there was a rash, but no fever, and it was possible that these forms represented an intermediate stage in the life cycle of the infecting organism. The enlargement of the spleen and liver was rapidly reduced by quinine. Kyrle and Morawitz described a method of diagnosis by excising a piece of skin invaded by the roseola. The characteristic changes in the blood vessels of the skin could be demonstrated within forty-eight hours. One speaker had found the intravenous and intramuscular injection of serum taken from convalescents of no value, but another said that the intravenous injection of 60 to 80 c.cm. of this serum was beneficial. He was also favourably impressed by the action of large doses of urotropine.

TYPHOID FEVER.

The discussion on this subject was opened by Professor v. Krehl, who said that every recent case of typhoid in the army had developed in spite of inoculation. Relapses seemed to be more common in war than in peace, and enlargement of the spleen frequently persisted in war-time, even when the patient seemed otherwise to have recovered completely. The enlargement of the spleen was greater than was usual in peace. The treatment of typhoid fever with killed or devitalized typhoid bacilli was still on its trial, as was also treatment with the serum of convalescents and with albumoses.

Generalarzt Hünermann said that the vaccine used for typhoid inoculation was the Pfeiffer-Kolle, which was heated up to only 53° to 55° C. Inoculation was repeated six months later. Although many million injections had been given, there had been only a few mistakes, and not a single death. The inoculation caused enlargement of the spleen lasting several weeks, changes in the microscopic appearance of the blood, and a positive Widal reaction, which lasted for months, and in a few cases for a year. Inoculation undertaken during the incubation period did no harm, and the course of such cases was mild. The number of cases of typhoid fell at once when inoculation was carried out, and even at its worst in December, 1914, the disease was still fourteen times less prevalent than in October, 1870. In December, 1915, there were occasions when both armies, and the population of a large town, had not a single case of typhoid fever. In the summer of 1915 there were numerous cases of dysentery, but none of typhoid fever, thanks to inoculation. In the Medical Service there were not half so many cases for every thousand cases of typhoid fever treated as in time of peace; and this was, no doubt, due to the inoculation of every member of the Medical Service. The mortality had fallen from 9.6 per cent. among the uninoculated to 6.6 per cent. among patients inoculated twice, and to 2.6 per cent. among patients inoculated more often. The course of the disease among the inoculated was often so mild that it was difficult to diagnose, and the contrast between the inoculated and uninoculated cases in the same district and at the same time was most striking. Inoculation had also reduced the proportion of cases in which bacilli were still discharged after convalescence. Inoculation was regarded as effective for six months.

(To be continued.)

THE RED CROSS AUXILIARY HOSPITALS FOR OFFICERS, BRIGHTON.

THESE hospitals, situated on the sea front at the eastern end of Brighton, about 150 ft. above sea level, have been established by the Red Cross Society for the treatment of sick and wounded officers. The total number of beds available is 133, located in five separate buildings close together. In addition to these patients, there are a number of officers in hotels and lodgings who attend as out-patients.

The buildings are well equipped for all purposes of treatment, containing an excellent modern operating theatre, with all the necessary appliances for sterilizing, etc., and here are performed such operations as may be required.

The department for physical treatment is one of the principal features of the establishment. All the most modern methods of electrical and physical treatment, including whirlpool baths, of the original French pattern

(which were presented by H.R.H. the Princess Royal), radiant heat, all varieties of electrical methods, ionization, massage, etc. About seventy officers a day are treated here, under the direction of Dr. F. P. Nunneley, commandant and medical officer in charge, assisted by three masseurs and six masseuses. The other members of the medical staff are Dr. J. C. Uhthoff, honorary physician, and Captain R. Sanderson, R.A.M.C.T. Only fully trained nurses are employed for all nursing purposes. Members of Voluntary Aid Detachments help in the work of the hospital, and there are some orderlies.

Another special feature of the hospital is the open-air treatment. Practically no officer stays in bed in the daytime; for those who cannot walk a wheel couch is employed which can be moved to a specially constructed lift. In front of the houses, separated from the main road, is a lawn on which tents have been placed. The hospitals are supported partly by the British Red Cross Society and partly by capitation grants from the War Office. In addition, there are a number of private subscribers. The expense of one of the houses is borne by ex-King Manoel of Portugal. Lady Dudley, whose hospital war work is so well known, takes the keenest personal interest in everything connected with the hospital, and is largely responsible for its foundation and successful progress. Among other generous contributors towards the needs of the hospitals are the Marchioness of Sligo, Mr. Scrase Dickens (late Chairman of the Royal Sussex County Hospital), Admiral Sir Hedworth Meux (who have all lent furnished houses), the Marquis of Abergavenny and Mr. Goodhart Rendel (who have lent unfurnished houses), and Mr. Thomas Pope (who has put in the large lift capable of taking a spinal chair or couch). H.R.H. the Princess Royal, in addition to presenting the whirlpool baths already mentioned, gives material assistance by paying the rent of two of the houses used.

The whole institution is most excellently managed, and the Commandant, Dr. Nunneley, is to be congratulated on the splendid hospital of which he has the care.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Lost at Sea.

SURGEON PROBATIONER GERALD S. FREEMAN, R.N.V.R., H.M.S. *Lassoo*, was reported as missing, presumably drowned, when the destroyer *Lassoo* was sunk, by a mine or torpedo, on August 13th. He was the only son of Mr. James M. Freeman, Supervisor of Excise, Huntly. He was studying medicine at Aberdeen University, and at the beginning of the war joined the 6th Battalion Gordon Highlanders, afterwards transferring to the navy. He was 21 years old.

ARMY.

Killed in Action.

Captain Hugh Kennedy Birley, Manchester Regiment, was killed on July 23rd. He was educated at Owens College, Manchester, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1895. After acting as clinical assistant in the Cancer Hospital, Manchester, and house-surgeon of the Chorley Dispensary and Rawcliffe Hospital, he went into practice at Irlams-o'-th'-Height, near Manchester. He took a great interest in Red Cross work, and was assistant director of the British Red Cross Society of Pendleton, Manchester. He took a commission as captain in the 19th Service Battalion of the Manchester Regiment on September 21st, 1914, and went to the front in November, 1915. He was the elder son of Frederick Birley, and was 47 years of age.

Captain George Robert Hitchin, R.A.M.C.(T.F.), recently killed in action, was the only son of Mr. R. Hitchin, of Burnley. He was educated at Burnley Grammar School and at Manchester University, where he graduated M.B. and Ch.B. in 1903. After serving for some time as a ship surgeon he went into practice at Tottington, Bury. He joined the 2nd East Lancashire Field Ambulance as lieutenant on November 22nd, 1914.

With regard to the death of Captain Hugh Gwilym Morris, R.A.M.C., reported in our issue of August 5th, p. 193, we are informed that the Commanding Officer, in communicating the sad news to Mrs. Morris, wrote:

Your husband gave his life most gallantly in the midst of succouring wounded comrades where they had fallen in action in Bernefay Wood. He died as he had ever lived—a pattern of unselfishness, considering himself last, in the end giving even his life for others. All of us who knew him are mourning the loss of one of the best men this world contained. He was the idol of the whole unit, officers and men alike, and it was the unanimous desire of all that his great gallantry (which led to his death) should receive recognition. As his commanding officer I have therefore had the inestimable privilege of recommending such a man as your husband was for the award of the Victoria Cross. Whether this be now granted or no, it may comfort you to know that all of us who served with him deemed him fully worthy of the highest of honours.

He was killed instantly by a shell on the morning of July 14th, after he had been working all night between Bernefay and Trônes woods dressing wounded, and his men carried him to where we buried his remains in a little cemetery set apart for British heroes who have fallen for our country.

All the officers of the unit wish me to convey to you our combined expression of sincere sympathy with you and the children. Though he be gone from us, he still lives in the lives of all of us here not only as a tender memory but as a great inspiration.

Captain J. O'Brien, R.A.M.C., Special Reserve.

Captain Douglas Henry David Wooderson, R.A.M.C., was killed in action on August 6th. He was born in London in May, 1892, and was educated at Bart's, where he had a very distinguished career as a student, gaining the junior entrance scholarship in science in 1909, the junior scholarship in anatomy and biology in 1910, and the senior scholarship in anatomy, chemistry, and physiology in 1912; and also winning the following prizes: Harvey, 1910; Wix, 1911; Bentley, 1913; and Sir George Burrows, 1914. He graduated as B.Sc.Lond., with honours in physiology, in 1911; and as M.B. and B.S., with honours in medicine, midwifery, and diseases of women, in 1914; and also took the M.R.C.S. and L.R.C.P.Lond. in 1914. He took a temporary commission as lieutenant in the R.A.M.C. on December 10th, 1914, went to the front in March, 1915, was promoted to captain on completion of a year's service, and was attached to the King's Liverpool Regiment when he was killed. He had previously been invalided for trench fever in July 1915, and returned to the front in October. He was the elder son of Mr. H. D. Wooderson, of 39, Dartmouth Road, Brondesbury, N.W.

Lieutenant W. L. Evans, R.A.M.C. (temporary).

Died of Wounds.

Captain O. H. Peters, R.A.M.C.(T.F.).

Captain George Stanton, R.A.M.C., died on August 16th, of wounds received on July 1st. He was the youngest son of Mr. Stanton of Cork, and was educated at the Christian Brothers College, Cork, and at Trinity College, Dublin, where he graduated M.B., B.Ch., and B.A.O. in 1914. He joined the Special Reserve of the R.A.M.C. as lieutenant on September 11th, 1914, and had been at the front since October, 1915. His brother, Second Lieutenant Robert Stanton, Royal Dublin Fusiliers, was killed at Suvla Bay on August 9th, 1915.

Captain J. P. Walsh, Canadian A.M.C.

Captain George Huntly Woods, New Zealand Medical Corps, who was stated to be wounded a fortnight ago, was reported in the casualty list published on August 18th to have died of his wounds. He was educated at Durham University, where he graduated as M.B. and B.S. in 1909. After acting as house-surgeon successively in the accident, the ophthalmic and aural, and general departments of the Royal Victoria Infirmary, Newcastle-on-Tyne, he went to New Zealand, where he was in practice at St. Andrews, South Canterbury.

Died on Service.

Major N. E. J. Harding, R.A.M.C.

Captain Robert Inglis Binning, I.M.S., died of fever at Basra, the base in Mesopotamia, on August 16th, aged 31. He was born on May 4th, 1885, the son of Mr. John Binning of Glasgow, and educated at Glasgow University, where he graduated as M.B. and Ch.B. in 1907. After acting as resident medical officer in the Western Infirmary and in the Royal Infirmary in Glasgow he entered the I.M.S. as lieutenant on July 31st, 1909, becoming captain on July 31st, 1912.

A friend of the late Captain A. S. Seabrooke, who died (from paratyphoid fever) in Mesopotamia on July 1st, writes to inform us that the appointments held by Captain Seabrooke at Guy's Hospital were those of house-surgeon and resident obstetrical officer. He adds that Captain Seabrooke was first attached to the Rawal Pindi Hospital

in France, and went with the hospital when it was transferred to Mesopotamia in November, 1915. Both Lieutenant-Colonel C. Green and Major Davies-Colley write in the very highest terms of his conscientious devotion to duties, and of the excellent work done by him both in France and in the East. At Guy's his attainments were recognized to be of a high order, and his never-failing kindness and absolute integrity of character caused him to be universally loved and admired. News of his death brought forth expression in the deepest terms of regret from all members of the medical and surgical staff, and everybody with whom he had been associated, and cast a gloom upon the whole hospital.

Prisoners of War.

The names of Assistant Surgeons L. A. De Souza, D. L. Mackay, and M. P. Shemain, all of the Indian Subordinate Medical Department, have been added to the list of prisoners taken at Kut-el-Amara.

Wounded.

Major F. Worthington, D.S.O., R.A.M.C.
Captain N. G. Chavasse, R.A.M.C.(T.F.).
Captain H. B. Day, R.A.M.C. (temporary).
Captain C. O. Donovan, R.A.M.C. (temporary).
Captain S. B. Faulkner, R.A.M.C. (temporary).
Captain E. D. Gairdner, R.A.M.C.(T.F.).
Captain M. Gross, R.A.M.C. (temporary).
Captain L. S. B. Hamilton, R.A.M.C., S.R.
Captain F. R. Kerr, D.S.O., R.A.M.C., S.R.
Captain F. J. O. King, R.A.M.C. (temporary).
Captain R. J. B. Madden, R.A.M.C. (temporary).
Captain T. M. Newton, R.A.M.C. (temporary).
Captain A. W. Raymond, R.A.M.C. (temporary).
Captain H. H. Robinson, R.A.M.C.(T.F.).
Captain P. Thornton, R.A.M.C., S.R.
Captain O. Teichmann, R.A.M.C.(T.F.).
Captain A. M. Trotter, New Zealand Medical Corps.
Captain W. L. Wood, R.A.M.C. (temporary).
Lieutenant P. R. Boswell, R.A.M.C. (temporary).
Lieutenant W. R. Dimond, R.A.M.C. (temporary).
Lieutenant J. H. C. Gatchell, R.A.M.C. (temporary).
Lieutenant T. H. James, R.A.M.C. (temporary).
Lieutenant F. L. Keith, R.A.M.C. (temporary).
Lieutenant J. MacM. Watson, R.A.M.C. (temporary).

Captain Teichmann had previously been wounded in Gallipoli last year. The other medical officer of his regiment, the Worcestershire Yeomanry, Captain J. H. Beilby, was killed recently in Egypt (BRITISH MEDICAL JOURNAL, August 19th).

DEATHS AMONG SONS OF MEDICAL MEN.

Blackader, Gordon, Captain Canadian Infantry, son of Dr. Blackader, of Montreal, died on August 10th of wounds received on June 2nd.

Bower, William Carroll, Second Lieutenant King's Own Royal Lancaster Regiment, elder son of Dr. Bower, late of Hendon and of Ottery St. Mary, died in hospital abroad of appendicitis on August 9th, aged 30. He was educated at Heddon Court School and at Malvern College, and passed out of Sandhurst in July, 1915.

Burnie, John Gilchrist, Private, Royal Fusiliers (City of London Regiment), elder son of Dr. Gilchrist Burnie, of Heston, Bradford, killed recently in France, aged 24. He was educated at Northaw Place, Herts, at Shrewsbury, and at St. John's College, Oxford, where he was an honorary scholar and a member of the O.T.C. He enlisted in September, 1914, and was subsequently twice nominated for a commission, but on both occasions was rejected for short sight on medical examination. He had been at the front for nine months past. His only brother is a lieutenant in the navy.

Keelan, Claud Charles, Private, Honourable Artillery Company, youngest son of the late Dr. Nicholas Walter Keelan, died in King's College Hospital, on August 11th, of wounds received on March 25th, 1915.

Long, Francis William, Second Lieutenant Royal Field Artillery, elder son of the late Dr. F. T. Long, of Greenodd, Lancashire, died on June 28th as a prisoner of war at Par Mahn, in Germany. His commission was dated December 23rd, 1914.

Newstead, Frederick Lyle, Captain Durham Light Infantry, elder son of Dr. Newstead of Blyth, killed recently, aged 24. He was educated at Alnmouth and at Durham School, and studied medicine for three years at University College. He took a commission in the Special Reserve of the Durhams in 1912, became lieutenant on September 19th, 1914, and captain on November 20th, 1915. He went to the front in September, 1914, was invalided home in May, 1915, and returned to his battalion last November.

Seymour, Louis Thierry, Lieutenant York and Lancaster Regiment, second son of Dr. Seymour of Oxford, killed on August 13th, aged 23. His first commission was dated May 12th, 1915.

Weldon, Cyril George, South African Infantry, only son of the late Dr. George Weldon, killed on July 18th, aged 30.

MEDICAL STUDENTS.

Dowse, William Arthur Clarence, Second Lieutenant 11th Battalion Cheshire Regiment, who was reported missing in July, is believed to have been killed. He was the son of Dr. Thomas J. Dowse, of Wexford, and was a second year medical student at Trinity College, Dublin, where he had many friends.

Guthrie, A. J., Lieutenant Gordon Highlanders, eldest son of the Rev. W. G. Guthrie, Manse of Glass, killed on July 30th, aged 25. Prior to the war he was a medical student. His commission was dated April 17th, 1915.

Sanderson, Frederick B., Second Lieutenant Royal Field Artillery, died in hospital abroad on August 20th, of wounds received on August 4th, aged 27. He was the eldest and only surviving son of Mr. F. R. Sanderson of Edinburgh, and was educated at Charterhouse, at Caius College, Cambridge, where he graduated as B.A., and at Edinburgh University, where he was studying medicine. He took a commission in the 1st Lowland Brigade, 1st City of Edinburgh Battery, R.F.A.(T.F.), on September 7th, 1914.

Saunders, Alfred G., Second Lieutenant North Staffordshire Regiment, killed on July 30th. He was the only son of Mr. G. Saunders of Holmerend, and was educated at Newcastle High School, and at Manchester University, where he was a medical student.

NOTES.

BRITISH RED CROSS WORK WITH THE ITALIAN ARMY.

WE referred last week to the gift by the Wounded Allies Relief Committee of a motor field operating theatre. Lord Northcliffe, in a letter addressed to the *Times* from the Trentino front on August 17th, writes as follows:

On my way back from the outer edge of the wood, well within the fire zone, I visited one of the Italian surgical mobile hospitals with an operating theatre that can be folded and carried by motor. It is used only for urgent stomach and head wounds that cannot bear delay or removal. A portable *x*-ray apparatus, a motor water wagon carrying 500 gallons, four nurses, four surgeons, physicians, and orderlies complete the equipment. During the last two months 240 urgent operations have been performed. The hospital has 200 beds. It was given by the city of Milan and works under the Italian Red Cross. I have visited several other hospitals. All are in every respect modern, well staffed, and well equipped. The complete absence of flies is a remarkable feature of the Italian hospitals.

I wish to call attention to the splendid work done by the British Red Cross hospitals near Cormons, to which are attached twenty-four ambulances. This and other ambulance sections are highly spoken of by the Italians, who regard the British Red Cross activity as a pleasing manifestation of allied sympathy. Lord Monson is in charge and Sir Courtauld Thompson is now on a visit of inspection and is highly satisfied. Much good work has also been done by the Fourth Section of the British Red Cross, which has a travelling *x*-ray car under the management of an English lady, Countess Helen Gleichen. Owing to hard work during the battle of Gorizia one car has been put out of action, but I suggest the provision of another car specially constructed for mountain climbing, such as is made by the Italian Fiat Company. The value of the work of the Fourth Section can be gathered by the fact that as many as sixty urgent cases have been radiographed, often under fire, in a single day. All the Red Cross work here presents unusual difficulties, owing to the heat and the lack of water. . . . On this, as on other parts of the front, the horrible conduct of the Austrians and Hungarians in using explosive bullets and iron-spiked bludgeons for killing the wounded has intensified the war feeling. Austrians, like Germans, make reprisals for defeats in the field by acts of cruelty and vandalism.

HONOURS.

A long list of honours conferred was contained in the *London Gazette* of August 18th and 19th. Among the recipients are sixteen medical officers; one has received the C.M.G., two the D.S.O., and thirteen, of whom six belong to the Canadian Army Medical Corps, the Military Cross. The names are as follows:

C.M.G.

Colonel H. C. Maudsley, M.D., Australian Army Medical Corps.

Dr. Maudsley, who is physician to the Melbourne Hospital and Lecturer on Medicine in the University of Melbourne, served first of all as chief of the medical division of No. 1 Australian General Hospital in Egypt; afterwards he was appointed consulting physician with the Australian Imperial Forces, and also consulting physician to the Egyptian Command. He is on duty now in the former capacity in this country.

D.S.O.

Temporary Captain E. C. Gimson, R.A.M.C. For conspicuous gallantry when continually attending to the wounded under very heavy shell fire. He has displayed the greatest devotion to duty and contempt of personal danger.

Temporary Captain P. L. Watkin-Williams, R.A.M.C. For conspicuous gallantry when tending the wounded for six hours in a shell crater under very heavy shell fire. He was twice knocked over by the explosion of shells, and his coat and putties were ripped by shrapnel.

Military Cross.

Captain J. A. Cruickshank, I.M.S.

Captain G. Wilson, R.A.M.C.

Temporary Captain H. A. Pallant, R.A.M.C. For conspicuous gallantry and devotion to duty when attending to the wounded under heavy fire. Later he voluntarily acted as stretcher-bearer, and helped to carry off nearly forty wounded under heavy shell and machine-gun fire.

Captain C. W. Johnston, Canadian A.M.C. For conspicuous bravery and devotion to duty. He went forward to establish a new dressing station under terrific fire, and worked continuously for three days, making many trips backwards and forwards with complete success in regard to the evacuation of his wounded.

Captain W. J. McAlister, Canadian A.M.C. For gallantry and devotion to duty in attending wounded under very heavy shell-fire. Though blown up and badly shaken he continued his work, which at all times has been splendid.

Captain J. B. McGregor, Canadian A.M.C. For gallantry and devotion to duty during a period of great stress. Under great difficulties he cleared all his casualties, and on occasions carried out his duties under very heavy fire, quite regardless of personal danger.

Captain A. Ross, Canadian A.M.C. For conspicuous courage and devotion in the performance of his duties. After all dug-outs had been blown in, he continued to dress and attend to the wounded in open trenches or wherever necessity existed.

Captain F. J. Tees, Canadian A.M.C. For bravery and fearless devotion to duty under heavy shell and machine-gun fire. Captain Tees led his bearers in exposed situations with great gallantry, and successfully evacuated all his wounded.

Captain H. W. Wadge, Canadian A.M.C. For conspicuous bravery and devotion to duty when in charge of an advanced dressing station. Under intense bombardment he continued to dress and evacuate wounded for four hours. Later, under conditions of extreme danger and difficulty, he succeeded in evacuating all his wounded.

Temporary Lieutenant G. P. Armstrong, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty when tending the wounded in the open under heavy fire and getting them back to our own lines.

Temporary Lieutenant F. R. Hassard, M.B., R.A.M.C. For conspicuous gallantry and devotion to duty when collecting the wounded under shell, machine-gun, and sniper fire.

Temporary Lieutenant V. F. Stock, M.B., R.A.M.C. For conspicuous gallantry and devotion to duty. After being rendered unconscious by a shell explosion, he insisted on returning to duty, and for several days carried out his duties by daylight and exposed to heavy fire.

Temporary Lieutenant G. B. Wiswell, M.D., R.A.M.C. For conspicuous gallantry and devotion to duty when attending to the wounded and directing stretcher-bearers under shell and machine-gun fire without sleep or rest for three days and nights.

French Decoration.

The French Government has bestowed on Captain John Dale, R.A.M.C.(T.), "The Médaille d'Honneur des Epidémies" in recognition of his work in checking an epidemic of typhoid fever among the civil population in an area where, by reason of the mobilization, the usual civil practitioners were not available. Captain Dale, at the outbreak of war, was mobilized at once with the South Midland Division and went with the division to France. In civil life he is one of the assistant medical officers of health attached to the Public Health Department at the Council House, Birmingham.

Cost of Army Hutting.

The sum expended on hutting for troops (including hospitals) and for horses in the United Kingdom in the years 1914–16 was approximately £24,500,000. The Public Accounts Committee reports that, owing to unforeseen circumstances, the billeting of troops in the United Kingdom continued on an extensive scale during the winter of 1914-15, the total expenditure being £6,250,000. In January, 1915, the Army Council announced that it intended to reduce the rate of payment to the householder to 2s. 6d., but no reduction was effected until September 1st. The Committee regards this delay, which resulted in a quite unnecessary expenditure of public money, as inexcusable.

THE British Home for Wounded in Florence was established by the members of the British colony in Florence with the assistance of the Florence branch of the British Red Cross, and was opened just over a year ago. The committee was able to rent a building erected as the bathing establishment of the Bonifazio hospital. It began with 30 beds, but since November has had 40. It was designed especially for the treatment of patients suffering from injuries of the nervous system or limbs. Massage and electrical treatment are employed, and Dr. Cumbo is able to report very satisfactory results in a large number of cases. Among the patients have been several British officers. The treasurer is Dr. Alex. R. Coldstream, of Florence.

Scotland.

Epidemic Anterior Poliomyelitis.

SINCE we last referred to the matter, on July 22nd, additional cases of acute anterior poliomyelitis have occurred in the city of Aberdeen. There were 29 cases in June and 26 in July. All the cases in June, with the exception of three, aged 4½, 6, and 11 years, were of the age of 3 or under, the majority being from 1 to 2¼ years. In July all the cases except five were under the age of 5 years, and the majority were under 3 years; the oldest person attacked was a few months over the age of 7 years. In a few cases connexion between one case and another has been traced. Dr. Matthew Hay reports that the onset has been marked in most cases by fretfulness for a few days with more or less fever accompanied or followed by vomiting. Paralysis was not in some cases observed until after a week or more, in a few it was slight and began to disappear after a week. In most of the cases the leg has been affected, in a few one side of the face including the eyelids. In one or two cases there was a combination of paralysis of the face with paralysis of the limb. One adult, aged 24, died during July from acute ascending myelitis, not, Dr. Hay thinks, from acute anterior poliomyelitis. One fatal case in a child was probably due to the same condition—acute ascending myelitis—and not to acute poliomyelitis. During August six additional cases of acute poliomyelitis have been reported, all of them in children under 3 years of age.

The Highlands and Islands Medical Service Board.

Before the passing of the Highlands and Islands (Medical Service) Grant Act, 1913, the necessity for legislation in the direction of improving the medical service available in the Highlands was very evident to any one conversant with the conditions in these remote parts of Scotland. Such legislation was almost a necessary sequel to the passing of the Insurance Act, for that measure left largely untouched many districts, especially in the Islands, where the population consisted of crofters, and therefore of "unemployed" persons; moreover, very many of them lived very far distant from the means of relief afforded in more populous places by hospitals and dispensaries. Distances were so great that the fees to be paid were often much too high for persons who were making little more than a bare living from the soil and the sea, and even in cases where the head of the house was insured the services of a doctor might be almost an unattainable luxury for the family. Thus it frequently happened that severe and even fatal cases of illness were never seen by a medical man.

The second report of the Highlands and Islands Medical Service Board,[1] dealing with 1915, is a record of considerable progress in carrying into effect the various schemes prepared for the administration of the yearly grant, which amounts to £42,000; as this includes a sum of £10,000 previously voted in aid of mileage and other special charges connected with attendance on insured persons, the amount available for the purposes of the 1913 Act is actually £32,000 a year.

The abnormal shortage of doctors and nurses brought about by the war has considerably hampered the Board in effecting the proposed changes, but already in Argyll, Caithness, Inverness, Cromarty, Orkney, Shetland, and the Highland district of Perthshire, the scheme has been initiated. The medical men in these districts with whom an agreement has been made are giving attendance to uninsured persons at the uniform rate of 5s. for a first visit and 2s. 6d. for subsequent visits at whatever distance the patient may live. The majority of the doctors have cars or motor bicycles.

The supply of doctors, however, is at present inadequate, and owing to war conditions must in the meantime continue to be so. If, therefore, as may happen, a patient lives from 25 to 50 miles from his doctor, that patient is not likely to be able to obtain regular medical attendance, no matter what legislation may be enacted, so long as it is impossible to increase the number of practitioners. Consequently in many districts the benefits of the fund will not be fully enjoyed until after the war. In the same way the

[1] H.M. Stationery Office (Cd. 8216). To be obtained through any bookseller, price 3d.

present shortage of fully trained nurses cannot in the meantime be fully overcome. The Board continues to assist existing nursing associations, but has not yet exercised its power to appoint nurses as well as doctors. Fortunately it has been possible to keep the outlying islands of Bernera, St. Kilda, Foula, and Fair Isle supplied with nurses.

Some of the schemes outlined have not yet been put into operation, such as giving assistance to hospitals and ambulance services, the improvement of houses for doctors and nurses, grants for special services and for telegraph and telephone facilities. The Board is rightly endeavouring to reduce capital expenditure at this time to a minimum, and in view of the cost of labour, and difficulties in various directions, has decided to postpone many of the measures which legitimately come within the scope of the Act. The total expenditure for the year was £9,243 1s. 4d., while the balance to the credit of the fund at the end of 1915 was £67,663 17s. 9d. The expenses of administration are not a charge on the fund.

POST-NATAL CARE OF THE ILLEGITIMATE INFANT.

Some weeks ago (JOURNAL, July 15th and 22nd, pp. 79, 112) attention was drawn to the large scheme for maternity service and child welfare which had been prepared by Dr. Maxwell Williamson, M.O.H., and submitted to the Public Health Committee of the Town Council of Edinburgh. One of its outstanding features was the manner in which existing institutions had been worked into it, so as to provide for the welfare of the infant up to his fifth year (school age), and certainly Edinburgh is well supplied with hospitals, dispensaries, homes, clinics, kindergartens, play-centres, etc. The Infants' Edinburgh Home was not referred to by name, and yet it is calculated to do good work, although on a small scale and in a limited range. It is maintained for the benefit of the infants of unmarried mothers who have been confined in the Royal Maternity Hospital, lying-in homes, or elsewhere. The home is open only to unmarried mothers with their first babies, and is intended especially for those girls who may be leaving the hospital at the end of ten days, and who may either have no home to go to, or one at which they can no longer expect a welcome. In the past they have usually had to board out their young babies with the first person who offered, and return themselves to work without completing their convalescence properly. It is to relieve this unfortunate situation that the home—its name, by the way, is hardly happily chosen—is being carried on. Applicants must produce a medical certificate, and must sign an agreement to remain at least two months in the home; no mother may stay longer than nine months. Further, inmates must take part in the household work and comply pleasantly with the routine of the home. Five shillings is charged for each of the first two weeks, and 3s. 6d. for each succeeding week. Mothers who remain three months in the home may leave their babies there until they are a year old on payment of 5s. weekly. The objects of the home are stated to be fivefold: (1) To have the babies cared for and, whenever possible, nursed by their own mothers; (2) to help the mothers—usually quite young girls—to find good homes where the babies may eventually be boarded out or adopted; (3) to assist the girls to find suitable employment when they leave the home; (4) to strengthen and develop the mother's character, and (5) to trace the fathers and, if possible, compel them to contribute to the support of the children. The General Committee, which includes three medical men, is able to report that during last year 24 women of ages ranging from 16 to 37 passed through the home; 17 of them were domestic servants, 4 were factory girls, 1 was a laundry worker, 1 a field worker, and 1 a clerk. Of the 18 babies who left the home, 4 went to relations, 8 were boarded out, 3 were adopted, and 3 were delicate and died in hospital. The average number of mothers resident in the home was 5. The mortality amongst the infants of unmarried mothers who have to go back to work to earn a living, or who take to a life of shame, is very high. The home helps to complete the system, which, beginning with the prematernity home for unmarried primiparous patients, goes on through the antenatal clinic, the prematernity ward, and the maternity hospital, and finishes in this post-natal home. The committee is hampered in its efforts towards extension by the smallness of its resources, but it is certain that so valuable a piece of infant life conservation must not be allowed to fail for lack of funds. From the time the home was opened the medical responsibility for the inmates was borne by Dr. Dingwall Fordyce, and since his absence on war service his duties have been taken up by Dr. A. S. Cumming.

Ireland.

IT was reported to the monthly meeting of the Executive Committee of the Infant Aid Society, Dublin, that 1,087 visits had been paid to the homes of the poor and 453 gallons of milk, 50 articles of clothing, and 40 loaves of bread given.

STEWART INSTITUTION FOR IMBECILE CHILDREN.

The medical superintendent's recent report on the health of the inmates of the Stewart Institution for Imbecile Children stated that all the children recently elected had arrived, and, so far as could be judged, the prospects of improvement appeared fairly promising. There are now 122 pupils in the institution. The Managing Committee draws special attention to the serious financial effects caused by the great increase in the cost of food, fuel, wages, etc., asks for additional help in subscriptions and donations, and begs existing friends to do their utmost to widen the interest in the institution, which requires a considerable increase of income, not only to meet greatly enlarged outlay caused by present conditions, but to deal with the number of candidates who are on the books awaiting election. Elected children are nearly altogether dependent on voluntary help.

Canada.

ONTARIO MEDICAL ASSOCIATION.

THE thirty-sixth annual meeting of the Ontario Medical Association in Toronto, over which Dr. H. B. Anderson presided, was interesting and well attended. In his presidential address Dr. Anderson spoke of the tremendous struggle for freedom and justice in which the empire and her allies were engaged, and quoted the official historian who, in describing the battle of Ypres, said that "the members of the Canadian Army Medical Corps rivalled in coolness, endurance, and valour the men of the battalions who were their comrades." The association, he said, had put forth special efforts to assist in solving the problem of the injured soldier, and these efforts had already received recognition from the Government. Dr. Anderson laid emphasis upon the importance of depending upon the carefully appraised preparations in our national pharmacopoeias rather than upon the products of commercial houses, particularly those of German origin; and Professor A. D. Blackader, acting dean of the medical faculty and professor of pharmacology McGill University, in the course of an address on drugs and medicinal agents considered from the professional, economic, and national standpoints, strongly advocated the use of Canadian or British-made drugs in prescriptions. The physician should be acquainted with the formulae of all drugs used in his prescriptions, and the true chemical name, or the one used in the *British Pharmacopoeia*, should always be used. He suggested that after the war, in order to protect Canadian manufacturers, all German drugs should be heavily taxed. A notification from the Canadian Government of its intention to revise the bill for the sale of patent medicines was then read, and a committee was appointed to represent the association in relation to the proposed changes.

The address in gynaecology was delivered by Dr. J. F. Percy, of Galesbury, Illinois, who quoted cases of inoperable uterine carcinoma which had shown marked improvement from the application of varying degrees of heat by means of special apparatus. Dr. Justus Matthews, of the Mayo Clinic, Rochester, in an address on tonsillectomy, stated that such operations were usually performed under local anaesthesia, and that in a series of several thousand cases practically no bleeding has

occurred. The address in medicine, given by Dr. Elliott P. Joslin, of Boston, dealt with the treatment of diabetes mellitus. The importance of early treatment and of keeping the urine free from sugar was emphasized. Since fat was the source of the poisonous fatty acids, the preliminary treatment consisted of excluding fat from the diet; carbohydrates and proteins were then also cut down, but it was dangerous to cut the proteins down below a certain percentage. After a certain amount of starvation the diet could be slowly raised again without necessarily causing a reappearance or an increase in the amount of sugar in the urine.

The morning of the second day of the meeting was devoted to sessions in the sections of medicine, surgery, and gynaecology. Among the papers read was one by Professor F. R. Miller, of Western University, London, Ontario, entitled "A functional map of the floor of the fourth ventricle." Dr. Miller said that by employing the method of unipolar stimulation a number of functions had been localized in the floor of the fourth ventricle. It was found that stimulation at the inferior fovea caused deglutition and reflex secretion from the homolateral parotid and submaxillary glands. These effects were probably produced by stimulation of afferent fibres contained in the fasciculus solitarius. At two points situated at the level of the striae medullares submaxillary and parotid secretion was evoked. It seemed probable that these results depended upon stimulation of efferent fibres proceeding from the respective salivary nuclei. From the dorsal vagus nucleus cardiac inhibition and peristalsis of the stomach and small intestine might be elicited.

In the afternoon Professor De Wit Lewis, of Chicago, gave an address, illustrated by lantern slides, on cystic mastitis, and Professor S. S. Cohen, of Philadelphia, spoke on the treatment of pneumonia. Professor Cohen prefaced his remarks with a reference to the war, stating that the hearts of all the good people in the United States were with Great Britain and her Allies in their fight for freedom and righteous struggle against aggression. He advocated the use of quinine in the treatment of pneumonia, considering it a chemical antitoxin which neutralized the poisons of pneumonia.

In the evening moving pictures were shown to illustrate the technique employed in operations performed in the New York Polyclinic Hospital. The afternoon of the next day was given to the discussion of military questions. In a paper on neurosis in returned soldiers, Dr. Goldwin Howland, of Toronto, dealt with the various symptoms met with in returned soldiers who had undergone treatment at the Central Military Convalescent Hospital in Toronto. Captains Fitzgerald and McClennahan, of the C.A.M.C., pointed out that some of the rather unsatisfactory results of the treatment of cerebro-spinal meningitis had no doubt been due to the difficulty in obtaining proper antimeningococcus serum when the disease first made its appearance. Speaking of the effects of poisonous gases, as seen in soldiers who had returned from the front, Dr. Elliott, of Toronto, stated that it had been proved that the Germans had been experimenting for years on the effects of poisonous gases upon animals with a view to the employment of such gases in warfare. *X*-ray plates taken from patients at the Central Military Convalescent Hospital were exhibited and showed large coarse strands of fibrous tissue running outwards from the hilus of the lung. Some cases had been followed by tuberculosis. Senator J. S. McLennan, of the Military Hospitals Commission, discussed the problems connected with the care of invalided soldiers, and Professor Stephen Leacock, of the Chair of Economics in McGill University, dealt with the economic problem presented by the treatment and disposition of returned soldiers. The belief that war brought prosperity was, he said, absolutely fallacious; war was destructive and therefore must result in poverty—poverty as dire and as great as the destruction. The most serious problem would arise at the close of hostilities, when the huge armies would be disbanded and many of the men would refuse to return to their former indoor occupations. Work must be provided for them; after saying that every man must fight, it would be impossible to refuse them the chance to live. He believed that Canada would suffer less than Europe, since the large influx of men would be accompanied by money from the United States for the development of the vast and almost untouched natural resources of the country. The problem would have to be solved in Canada in conjunction with other parts of the empire.

The next annual meeting will be held at Toronto with Dr. A. Dalton Smith, of Mitchell, as President.

Canadian Medical Association.

In connexion with the meeting of the Ontario Medical Association, a meeting of the Executive Committee of the Canadian Medical Association was held. The annual meeting of the association was postponed last year on account of the war, and no meeting will take place this year. It has been decided to hold a meeting in 1917. The financial report for 1915 closed with a small balance in favour of the association, although the statement for 1914 showed a deficit of 700 dols. The secretary-treasurer of the association and the editor of the *Journal* are both at the seat of war, and during their absence the services of the acting officers have been given gratuitously; a considerable saving has thus been made, and it is due to this fact that the finances of the association are no worse.

Montreal's Milk Supply.

Montreal has gained an unenviable reputation for its heavy death-rate among infants, and it is believed that it is in a large measure due to the milk sold in the city, being dirty and below the standard established by the municipal regulations. The health authorities have been placed in a position of difficulty in dealing with the matter because the city by-laws were held to be invalid on the ground that matters relating to the milk supply were under the jurisdiction of the provincial government. This meant that each examination of the milk had to be made by an analyst employed by the provincial government at a cost to the city of from 2.50 dols. to 5.00 dols. for each analysis, and that all cases would have to be tried in the Federal courts. Last November, however, a dealer was fined for having in his possession, with intent to sell in the city of Montreal, milk below the standard established by the city by-laws. On an appeal to the Superior Court, the validity of the by-laws was established.

Correspondence.

A PROFESSION IN LEADING STRINGS.

Sir,—May I call attention to an interesting coincidence in two of the leading articles in the British Medical Journal of August 19th? These articles deal with two totally different subjects; yet in each the same defect in Government administration is noted. In "A Voice from the Dead" you quote a statement of the late Sir Victor Horsley that last March the Commander-in-Chief in India told him that he had appointed a "medical commission." Yet this "medical commission" consisted of members possessing no medical knowledge. In dealing with the "Obligations of the Profession to Discharged Soldiers," we find again that "there does not appear to be an obligation that local Pensions Committees should contain any representative of the medical profession." "The Central Pensions Committee itself does not contain any representative of the medical profession." "The Disablement Committee is almost entirely lay."

It is difficult to know whether to be amused, angry, or cynical at such a state of affairs; nor is it easy to know where to allot the blame. I will therefore confine myself simply to the cure. To complain that the medical profession is neglected by Government departments in matters vitally affecting its interests, as well as those of the community, is useless; there will not be the slightest change in procedure until the profession asserts itself through those of its members who can command a hearing. If this is not worth doing, matters must be left to go on as at present; no protest by a Horsley, no proposal for the formation of a new sectional committee by a Fothergill, will have the slightest effect.

The first necessity is watchfulness, which can only be maintained by a whole-time officer—preferably a layman—trained in keeping an eye on the earliest symptoms of activity on the part of politicians or philanthropists.

Next, a small body of well-known medical men is required. These should be drawn from all sections of the medical profession, should be easily accessible, and able to devote a portion of their time to problems as they

arise. The whole-time officer will report to them all matters in which the representation of medical opinion would be advisable.

Thirdly, the medical profession must be prepared to spend money on an office fully equipped to deal with the mass of material which will flow into it. The work would be of enormous magnitude, and only an office run on the most businesslike lines could possibly deal with it.

With arrangements such as these the profession could deal with the earliest symptom of the disease known as "progress." It would be possible to adopt at an early stage preventive treatment, so far as some of the complications which follow the disease are concerned; and the medical man would no longer be called in only after the complications are established.—I am, etc.,

August 21st. ADULT.

THE OBLIGATIONS AND CONSEQUENCES OF THE WAR TO MEDICAL AND ALLIED SCIENCES AND THE HONOUR AND INTERESTS OF THE MEDICAL PROFESSION.

SIR,—The motion which Dr. Rowland Fothergill carried in the Representative Meeting, and the letter which he writes under the above title in your issue of August 19th, are, doubtless with intent, phrased in wide and general terms. Dr. Fothergill wishes, I gather, to throw the whole field of the future, so far as this can be estimated, open to inquiry, and to avoid any restriction of the enterprise by an undue rigidity of definition. With this motive, I fancy, everyone concerned will sympathize. There is, however, at least one danger for any committee presented with terms of reference which boast a large liberty of interpretation. It is that some individual point, while not excluded from the inquiry, may possibly be overlooked.

In view of this risk I venture to suggest that a question not to be avoided by any committee charged with the mission contemplated in Dr. Fothergill's motion is the provision for medical practitioners of convenient facilities for post-graduation study. In this country these facilities have never attained more than a moderate degree of development, and those which existed up to 1914 have for the most part suffered the disorganizing influences of the war. The re-establishment of such facilities, or, still better, their improvement and extension, must surely be a matter for concern to any organization responsible for a programme fit to maintain the "honour and interests" of the medical profession, seeing that efficiency stands in the first rank of this ambition. A recent experience adds force to this contention. I may not refer to the matter in detail, but it has been quite plainly stated that a group of official administrative decrees which seem to reflect on the efficiency of the general practitioner claim their justification in the absence of a general professional interest in certain modern methods of treatment. Apart, however, from individual incidents, it may safely be stated that the existence of clinical and laboratory educational opportunities is a necessity of modern medical practice, and that any scheme for the future which neglects this need will be seriously or even fatally defective. Possibly the point is one which Dr. Fothergill already has in view, but as I have failed to find any inkling of it in the terms of his letter, I ask your permission to enter this plea for its due consideration.—I am, etc.,

London, W., Aug. 21st. C. O. HAWTHORNE.

SIR,—With reference to Dr. Fothergill's letter in the JOURNAL of August 19th, and to your leading article in the same issue, may I venture to suggest that neither seems to go to the root of the question.

Your leader—and I trust you will not take the criticism amiss—concerns itself with a small part of the problem, namely, the *post-bellum* treatment of war cripples, in relation to a system—namely, the State Insurance System—which may then no longer exist. Why it may no longer exist I will endeavour to make clear presently.

Dr. Fothergill makes the following statements:

> The public requires educating in matters of public health. It is the medical profession's duty to do this. At once certain statements can be made which the public should be educated to accept.

Apparently as the first of these statements he puts:

> If medicine and the allied sciences are to make any progress then the profession must be consulted and should retain its freedom.

Now running through these and similar statements, I seem to detect a lack of any recognition of the main reason which prevents our educating the public now—to wit, that we are not free to do so. The whole-time public health officer with security of tenure is free, he can express any opinion however unpalatable to erring members of the public. Unfortunately he has not the ear of the public, if we except occasional press notices of his annual reports. The general practitioner has the ear of the public, and each in his own circle has a measure of authority and influence; but, alas! his livelihood depends on his pleasing his patients, and he is consequently in no position to voice unpalatable truths.

Can a local practitioner many of whose best patients are owners of more or less insanitary cottages or unhygienic workshops afford to tell them, in their capacity of town councillors, that it is their plain duty to improve conditions? Certainly he cannot and does not, or, if he does, is immediately made to suffer financially for his temerity. I think no one in general practice will dispute this, which is only one example of the fact that we are not free to educate the public. In present circumstances it is mere beating the air to tell us that it is our duty to educate the public. We know it, but so long as we have wives and families we cannot afford to indulge in public-spirited altruism.

So also it is mere beating the air to tell the public that we must be free unless we can give some sort of idea of what we mean by freedom in this connexion. The public has rather the idea that we are the freest and most independent of all professions, and if we could listen to our own utterances by the sick-bed we should perhaps be slower to blame them for their mistaken view.

There is a further apparent fallacy in both articles, a fallacy we ought to be well rid of by now—namely, that the State may consult us when it introduces new schemes. It has seldom, if ever, done so yet. We may be consulted on details or on the application of schemes, but not as to the advisability of touching the schemes at all. Possibly, as Dr. Fothergill foresees, we might one day so organize that we could render useless any scheme of which we did not approve, and then we should be consulted; but that organization (which would, so long as it was not solely for our own ends, command public respect) cannot be set up in one year, or even five.

Should we not be far better employed to-day in studying what the State is likely to do, and in educating our members accordingly? We are bound to be asked or else compelled to take part in the work of social reconstruction, and we are equally certain not to have any determining voice in the methods adopted.

Suppose the State decides that general practitioners shall be freed from the results of expressing unpalatable opinions which are yet in the public interest, and that it will proceed to co-ordinate the many existing bodies dealing with prophylaxis and medical treatment. It could do so at once in one vast scheme of State medical service. Are we prepared to assist in the setting up of such a scheme on a satisfactory basis? Apparently we are not, for the lay press finds room for the suggestion, but not the medical. If we do not like it we shall, as before, be forced into it in circumstances most discreditable to ourselves. Suppose the State only desires to municipalize hospitals or to enormously extend the scope of the Insurance Acts. Are we ready to help in such schemes in any way which could be of real assistance, or are we to try and form opinions (after educating the profession with three meetings and a dozen pamphlets) only when the scheme is actually proposed, and become one of the planks of a political party?

I venture to suggest that our proper preparation for the duties which will fall on us after the war should consist of (1) an educated appreciation of the general direction in which legislation is tending; and (2) discussion as widespread as possible of the various methods which may be proposed to us.

To the statesman, "the honour and interests of the medical profession" make as little appeal as they do to the public, and in any case far less than those of any well-managed working men's union.

If we (the tail) insist on trying to wag the dog (the State) we shall court disaster and ridicule. If we set out to wag as the State decides and with as little incon-

venience as may be to ourselves, we may perchance avoid being sat upon, to the great advantage of both, but by all means let us wag efficiently.—I am, etc.,

Sevenoaks, Kent, Aug. 22nd. GORDON WARD, M.D.

SIR,—I have read with great interest Dr. Fothergill's letter in the JOURNAL, and it is undoubtedly time we knew where we were and in what way we can help in the general reconstruction of things, particularly our public health, after the war.

It appears to me now also that the time has come when we should make a definite stand in certain matters affecting our status and well-being. As a profession we want freedom from unnecessary lay control, such as one sees under the National Insurance Act, and, as one would read from Sir Victor Horsley's letter, such as played havoc with medical arrangements in Mesopotamia. Our profession is, I trust, still a profession, not a medical "business"; unless we pull up it is quickly for the rank and file becoming the latter.

Medical men require sufficient payment for their work to have leisure to keep up with scientific progress by study and practical experience at hospital or post-graduate clinics.

If our payment is to be on the scale of the National Insurance Act, then we may say good-bye to any such thing as far as the rank and file are concerned. Can we not make a stand in this matter? Our demand is legitimate; it is in the public interest, and the expenditure for the State would be a mere bagatelle.

With regard to the Insurance Act, our capitation fee of 7s. is now only worth about 4s. 2d., owing to the increased cost of living, besides, the amount of sickness among the insured has exceeded the estimation of the Government; and, more, we have on our hands now, owing to the war and the enlistment of the healthy males of military age, the insured persons most liable to illness—a point in itself which should have led to an increased capitation fee; now the disabled soldiers are going on our lists. Looked upon as an "insurance," the whole thing is a farce.

We as a profession, if the lives of our insured are bad lives, like an insurance company, if our finance is to be sound, we must have an increased premium. If everything is added up, the capitation fee now should be about 15s.; certainly not less. The expenses of medical men are largely increased by the war; they cannot reduce them. We have generously done work gratis for the public; at the same time we must live. The only alternative to financial trouble is increased remuneration.

We must also be freed from all this petty scraping and saving practised by Insurance Committees at our expense and the expense of the insured, as is exemplified in surcharging for prescriptions. Let us therefore formulate our demands. The Irish farmer, in his demands for a proper charter for the land, took his three F's; we, for our medical charter, must formulate ours. Might I suggest for a beginning the following: Freedom of control, fair remuneration, and in the future our old age made sure by superannuation?

Poor Law medical officers and other Government officials are worthy of superannuation; is our panel doctor and M.O.H. less so?

I am in thorough sympathy with Dr. Fothergill's suggestions, but I feel that with an ill-paid and overworked profession unable to keep abreast of the times national health reconstruction is impossible.—I am, etc.,

Long Eaton, Aug. 21st. E. H. M. MILLIGAN.

TREATMENT OF THE MAIN NERVES IN AMPUTATIONS.

SIR,—I am sure Mr. Marmaduke Sheild will be interested to hear that the practice he advises is systematically adopted at Netley.

During twelve months' work as an operating surgeon there I can safely say that I neither saw an amputation performed nor performed one myself in which the main nerves were not cleared and divided high up clear of the flaps.

Personally, I was following the advice laid down in the 1912 edition of Cheyne and Burghard's *Surgery*, which I have looked up so as to quote it correctly:

Painless Scar.—If the large nerves be divided at a higher level than the other structures in the flap, they do not become pressed upon by the cicatrix or adherent to the bone. This is a point of great importance, because, should the nerves become involved in the scar, bulbous enlargement will occur, neuritis will be set up, and the patient will suffer from intense neuralgic pain, aggravated by the slightest pressure.

I need hardly say I heartily concur in Mr. Sheild's remarks. He is to be much thanked for again drawing attention to and emphasizing this important point.—I am, etc.,

Exeter, Aug. 21st. RUSSELL COOMBE.

SIR,—I have read with much interest and instruction Mr. Marmaduke Sheild's remarks upon treatment of main nerves in amputations.[1]

Mr. Sheild says he is "not aware that the 'shortening' of the main nerves is prominently alluded to in the textbooks on operative surgery." I crave leave to draw his attention to *A System of Operative Surgery*, vol. i, Sec. iii, by Mr. F. F. Burghard, in which the following is to be read:

A painful stump is another source of great suffering to the patient. The most common cause of this condition is the implication of the several ends of the main nerves in the cicatrix; these become bulbous, and intense pain is experienced on the slightest pressure, so that it is impossible for an artificial limb to be worn.

The matter is equally forcibly dealt with in Thomson and Miles's *Manual of Surgery*, vol. iii, Operative Surgery, where also the following is to be read:

No nerve trunks should be left in the tissues covering the end of the stump, as they are liable to become incorporated in the scar and to form neuromata, which render the stump extremely sensitive.

From these quotations the conclusion to be drawn is that in some amputations the main nerves should be shortened. That this practice is not always carried out is evidenced by the cases Mr. Sheild has been called upon to treat. I have had recently in the out-patient department of the Royal West Sussex Hospital a sailor on whom amputation had been performed through the right elbow-joint. He had been supplied with an artificial limb but was quite unable to bear its fixation owing to two small tender lumps in the region of the scar. I admitted him as an in-patient, and in May last resected the stump scar and dissected down to the two painful spots. The median nerve was found to be fixed down to scar tissue, and upon being well exposed was seen to be bulbous at the end, and presented the appearance of a small spring onion. This was removed together with about an inch of the nerve trunk, and the latter allowed to retract into the soft tissues. The ulnar nerve was found to be in the same condition but to a lesser degree. This was treated in a like manner and the wound brought together. The man is now free from pain, and able to fix his artificial limb with every comfort.

This case appears to be one of many others that may be quoted in support of Mr. Sheild's remarks upon this all-important subject at this time when unfortunately so many amputations are being performed.—I am, etc.,

Chichester, August 20th. ARTHUR M. BARFORD.

WARM ETHER.

SIR,—The article on "warm ether" (August 19th, p. 268) does not, I think, do justice to the work of the American anaesthetists, notably Gwathmey and Davis, who can claim priority for the introduction of this method, as well as the credit for a considerable amount of experimental and clinical research. An account of this work was given by me in the *Lancet*, January 8th, 1916, together with the results of my own experience with warmed anaesthetic vapours, which confirms the claims made by Gwathmey that the chief advantages of the method are increased safety of anaesthesia, diminished loss of body heat, and therefore less shock, and a lessened tendency to post-operative bronchial affections. Your correspondent has, if I may say so, well described the other advantages, and his hints on apparatus are likely to be of much value to those who have not the opportunity to procure a ready-made apparatus, but I was a little disappointed that the first claim, namely, increased safety, was not discussed, for although at first sight "ether" and "danger" appear strange bed-fellows, it is undoubtedly true that the respiratory centre retains

[1] BRITISH MEDICAL JOURNAL, August 19th, p. 273.

its activity longer with warm ether than with open, and that anaesthesia can be pushed with less likelihood of pulse failure and with less anxiety. This is of considerable importance in a severe operation or in a patient "already partially collapsed." It is of even more importance when chloroform or a chloroform-containing mixture is being used, and I think that the anaesthetist who has travelled so far as to warm his ether will be well advised to go a step further and add a Junker bottle to his apparatus; he will find, too, that a regulating tap, such as I have described, to control the current of air will enable him to administer at will the warm vapour of ether, chloroform, or of mixtures of the two.

Finally, I should like to point out (1) that it is better to pass the vapour tube through a hole in the rim of the mask, instead of attaching it to a metal connexion, which cools the vapour to its own lower temperature and renders the vacuum flask almost superfluous, and (2) that it is more convenient, and does not cause recondensation, to have the tubing leading from the apparatus at least 24 in. long; hotter water in the vacuum flask compensates for the increased loss of heat.—I am, etc.,

London, W., Aug 21st. FRANCIS E. SHIPWAY.

PROPOSED MIDWIVES ACT FOR IRELAND.

SIR,—Before an Act for Ireland is drafted on the lines of the English Act, may I suggest that the opinion of the medical advisers of the local supervising authorities in England should be sought? I think that generally the opinion will be given that the present Act is unsatisfactory for the following reasons: (1) That women engaged in sick nursing have now taken up midwifery, and (2) that puerperal fever is not so much found in the practice of midwives, whether they are Gamps or trained midwives, as in the practice of nurses who are engaged in looking after abscesses, ulcers, and discharging growths, etc., as well as doing midwifery. If trained midwives are to be a success, midwifery must be divorced from sick nursing.

The reason generally given for tacking midwifery on to sick nursing is that without it sufficient funds cannot be found to pay for sick nursing! When the nation needs every life, we should not be content with anything but the best for the women who are adding to the man power of the nation, and we must not be content until we have provided for every lying-in woman the best service possible. This can only be done by the establishment of maternity hospitals throughout the country; the hospitals to be in charge of trained midwives who practise in the area around the hospital as well as attend to the patients in the hospital, every hospital being so placed that skilled medical attention can easily be obtained. In the sparsely populated parts of Great Britain and Ireland it is impossible for a woman to approach childbirth without running unnecessary risks—risks which would be removed by the provision of small maternity hospitals. The Local Government Board has obtained power to make grants for assisting midwifery in necessitous cases, and the money could not be better expended than in the provision of small maternity hospitals.

If these were provided in Ireland more good would be done than by passing a Midwives Act on the same lines as the English Act. The procedure under the present Act is extremely unsatisfactory. When a midwife is charged before the Central Midwives Board she does not give her evidence on oath, and if she lies with sufficient skill and audacity she may avoid her name being removed from the roll. A proper Midwives Act should enable the local supervising authority to bring a midwife before a properly constituted legal tribunal locally, which could take evidence on oath and have power to fine the midwife for minor offences, and for serious offences strike her off the roll. The absurdity of the present position is that the proceedings are held in London. Generally speaking, all the Central Midwives Board has before it are statutory declarations on both sides, which frequently are diametrically opposed to each other. Some of the midwives join one of the institutes which have representatives on the Central Midwives Board and so have some chance of influencing those in power.

Ireland is a distressful country. Let her put up with the ills she has rather than flee to those she knows not of.—I am, etc.,

August 21st. M.D.

Obituary.

SURGEON-MAJOR JOHN GREIG, R.A.M.C. (retired), died at Ealing on August 13th. He was educated at Marischal College, Aberdeen, where he graduated M.B. in 1858, nearly sixty years ago. He took the diploma of L.R.C.S.Ed. in the same year, and became a Fellow in 1860. He joined the Army Medical Department as assistant surgeon on December 14th, 1858, became surgeon in 1870, and surgeon-major in 1873, and retired on August 10th, 1881. He served in the Afghan war of 1878–80, receiving the medal.

Surgeon JOHN EUSTACE WEBB, R.N. (retired), died at Kerswill House, Looe, Cornwall, on August 6th. He was educated at Aberdeen, where he graduated M.B. and C.M. in 1884. After serving as house-surgeon of the Western General Dispensary he entered the navy, and held the posts of resident surgeon of the royal naval hospitals at Plymouth and Haslar, and instructor of sick berth staffs. When he retired from the navy he went into practice at Looe, where he was Admiralty surgeon and agent, port medical officer of health, certifying factory surgeon, medical officer and public vaccinator of the second district of Liskeard Union, medical officer of Looe Urban District Council, and examiner to the St. John Ambulance Association.

Universities and Colleges.

SCHOLARSHIPS AND PRIZES.

LONDON HOSPITAL MEDICAL SCHOOL.

THE following scholarships and prizes have been awarded:

Entrance Scholarships.—Buxton Scholarship in Arts, Mr. B. S. Nissé; Science Scholarship open to students of Epsom College, Mr. A. R. Stearn.

Prizes and Certificates.—Clinical Medicine—Prize: Mr. A. G. Harsant; Honorary Certificates: Messrs. R. G. Simpson and G. P. B. Huddy. Clinical Surgery—Prize: Mr. A. G. Harsant; Honorary Certificate: Mr. H. W. L. Molesworth. Clinical Obstetrics—Prize: Messrs. N. S. Hewitt* and G. Adler*; Honorary Certificate: Mr. R. G. Simpson. Andrew Clark Prize in Clinical Medicine and Pathology—Prize: Mr. A. G. Harsant; Honorary Certificates: Messrs. H. W. L. Molesworth and G. P. B. Huddy. Letheby Prizes in Chemistry—(1) Organic Chemistry: Messrs. H. S. Cohen* and J. Fanning*; (2) Inorganic Chemistry: Mr. D. Hunter; Honorary Certificates: Messrs. M. Marcus, J. J. Coghlan, and P. Steinberg. Sutton Prize in Pathology—Prize: Mr. R. G. Simpson; Honorary Certificate: Mr. A. G. Harsant. Elementary Clinical Surgery—Prizes: Messrs. M. Shimberg, I. H. Zortman, W. Eidinow, and E. Miller; Honorary Certificate: Mr. C. F. Rainer. Minor Surgery—Prizes: Messrs. J. K. Sanyal,* M. W. Bulman,* E. L. Sergeant,* H. Barker,* and G. Newman.* Practical Anatomy—First Prize: Mr. M. W. Bulman; Second Prize: Messrs. H. M. Gerson,* and J. Fanning.* Anderson Prizes in Elementary Clinical Medicine—Prizes: Messrs. D. C. Beaumont, I. H. Zortman, and G. R. Woodhead. Honorary Certificate: Mr. R. Theron.

* Equal; prizes divided.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

Entrance Science Scholarships.—First: M. D. Cadman (£150); Second: R. G. B. Marsh (£60). *Arts:* J. G. Churcher (£15 15s.).

The Services.

EXCHANGES.

REGIMENTAL M.O. (Temporary Captain R.A.M.C.), after seventeen months' service on the Continent with 1st Battalion of well-known regiment, wishes to exchange with R.A.M.C. officer serving at home.—Reply in first instance to M.O., Coldwells, Holmer, Hereford.

Captain R.A.M.C.(T.), in provisional unit, desires exchange with medical officer abroad in casualty clearing station, hospital depôt, ambulance train (home or abroad), or hospital ship. Failing these he would be glad to hear from any one in artillery who does not wish to go abroad, or M.O. in hospital abroad.—Address No. 3198, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), Casualty Clearing Station (H.D.), desires exchange into casualty clearing station or field ambulance in France.—Address No. 3300, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), Regimental, wishes for exchange to France. C.O. and A.D.M.S. permission obtained.—Address No. 3297, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Lieutenant R.A.M.C.(T.), nearly a year's service, desires exchange from regiment to base hospital, England or France, owing to ill health.—Address No. 3298, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical News.

Mr. A. H. W. Ayling, of Brixton and Walworth, has been elected Master of the Society of Apothecaries. He became a licentiate of the society in 1872, has been a member of the Court of Assistants and recently one of the wardens.

The Financial Secretary to the War Office stated recently in the House of Commons that the amount spent on jam for the army during the last financial year was about two million sterling.

The Wellcome Historical Medical Museum will be closed from September 1st to 30th inclusive for cleaning. It will reopen in October with a loan exhibition illustrating the folk-lore of London, including medical charms, amulets, and other objects found to have been used by the superstitious in connexion with the cure and prevention of disease.

Dr. Clippingdale (London) writes to say that the house in which Sir Victor Horsley was born is the picturesque old brick structure with the wooden lintel, formerly known as No. 1, High Row (now No. 128, Church Street), Kensington. Dr. Clippingdale adds the expression of his hope that the County Council will embellish the house with a tablet recording the fact.

Nature states that through a timely gift from Sir Charles Parsons the National Physical Laboratory has made arrangements, at the request of the Röntgen Society, for the examination of materials employed for the protection of *x*-ray workers. The equipment has been installed, and the conditions of test are being determined in conjunction with the council of the Röntgen Society.

The Right Hon. Arthur Henderson, M.P., who resigned the Presidency of the Board of Education in order to devote himself to the work of Labour Adviser to the Government, has been appointed Paymaster-General, in which capacity he will preside over the Board of Chelsea Commissioners. Mr. Henderson remains a member of the Cabinet, and his chief duties, it is understood, will be those connected with labour questions.

Captain J. P. N. Casey, R.A.M.C.(T.), has designed and the Army and Navy Stores (Victoria Street, London, S.W.) have made a combination wrist pocket to hold a handkerchief and to carry a wrist watch. Both handkerchief and watch are carried on the palmar aspect of the left wrist. The pocket for the handkerchief consists of a separate flap attached by laces, so that it is open all round to allow of ventilation. It is intended to be worn over a soft shirt wrist cuff.

According to the *Medical Record*, the total number of cases of poliomyelitis recorded in New York up to July 20th was 2,327, with 455 deaths. In a telegram from New York, dated August 12th, the number of cases is given as 6,000, with nearly 1,400 deaths. The Rockefeller Foundation has given £10,000 to aid in the work of discovering and keeping under observation suspected carriers. Adrenalin has been tried with apparent success in a number of cases. The United States Public Health Service has issued a notification that no child under 16 years of age will be allowed to leave New York for interstate travel without both a Federal certificate and one from the city department of health. Many cities have established a rigorous quarantine against children from New York.

The governors of the Girls School Association announce the offer of ten scholarships of the annual value of £35 to the daughters of army and naval officers at Fosse Bank Ladies' College, Tonbridge, Kent, a school opened in 1892 under the auspices of Canon Joseph Wood, at that time head master of Tonbridge School, and afterwards of Harrow. The scholarships reduce the fees for education, board, and residence to £28 inclusive. The association also offers scholarships of the annual value of £25 to the daughters of widows of clergymen, doctors, and professional men, and in special cases to the daughters of gentlemen in reduced circumstances through the war. Further information can be obtained from the head mistress or the secretary of the association, Mr. H. F. Pearson, 179, High Street, Tonbridge.

Dr. Robert Armstrong-Jones has received on the occasion of his retirement from the post of medical superintendent of the London County Lunatic Asylum, Claybury, many evidences of the value attached to his services. The Asylums Committee of the London County Council has presented to him an illuminated address embodying a generously-worded resolution of regret, and the Home Secretary has sanctioned the recommendation of the committee that Dr. Armstrong-Jones should receive a special pension. The Lunacy Commissioners have passed a resolution expressing appreciation of his services. Seven former assistants who had served under Dr. Armstrong-Jones are now medical superintendents of different asylums, and the matrons of five of the ten public asylums of London were trained at Claybury.

The late Miss Mary Hamilton, of Kelvinside, Glasgow, and Ascog, Bute, left £165,000 in bequests to Scottish institutions, including the following: £30,000 to the Western Infirmary, Glasgow, for a Hamilton ward and £7,500 for ordinary purposes; £10,000 to the Glasgow Royal Infirmary for ordinary purposes; £7,500 each to the Glasgow Hospital for Sick Children and the Edinburgh Royal Infirmary; £7,000 to the Victoria Infirmary, Glasgow; £5,000 to the Royal Edinburgh Hospital for Incurables; and £1,000 each to the Glasgow Ophthalmic Institution, Glasgow Hospital for Diseases of the Ear, Nose, and Throat, and the Glasgow Eye Infirmary. Miss Hamilton also bequeathed £2,500 to the Glasgow and West of Scotland Convalescent Home, Dunoon; £2,000 to the Glasgow Convalescent Homes, Lenzie; and £1,000 each to the McAlpin Nursing Home and Higginbotham Sick Poor Nursing Association.

By an arrangement between the Central War Pensions Statutory Committee and the Board of Agriculture discharged sailors and soldiers can be trained at the College of Agriculture and Horticulture, Holmes Chapel, Cheshire. One term of twelve weeks will, it is considered, enable men to obtain satisfactory employment on a farm, but they may, if they are ambitious and considered suitable, receive two further courses which will qualify them to take positions of responsibility. Among the first group, which included manual workers, clerks, a shop assistant, a dentist, a traveller, and a footman, several have already obtained posts on farms or in gardens, and one has been appointed subinspector in the horticultural branch of the Board. Among the men who have thus been rendered capable of doing useful work was one who had lost his right hand and another who had lost the use of his right arm. There are still vacancies for a reasonable number of men, and applications may be addressed to the Secretary of the Board of Agriculture, 4, Whitehall Place, S.W.

The Wounded Allies Relief Committee (Sardinia House, Kingsway), which was organized during the first month of the war, has during the two years established two homes for disabled Belgian soldiers in England, where they have been fitted with artificial limbs and taught to be self-supporting, and it has also maintained a sanatorium at Eastleigh for Belgian soldiers suffering from phthisis; it has presented bath caravans to the Belgian army, two of them capable of furnishing seventy hot baths an hour, and also a caravan supply kitchen. The committee is maintaining two hospitals for French soldiers—one at Limoges with 225 beds, and the other at Lyons with 300 beds. It has given four motor ambulances to the Russian Red Cross Society; it has provided a fever unit for Serbia and Montenegro; and, until the country was overrun, maintained hospitals at Kragujevatch and Podgoritza; more recently it has sent out fresh units with stores and provisions to Corfu.

During last week a deputation from the recent Education Conference at Oxford had conferences with the Chambers of Commerce of Leeds, Bradford, and Huddersfield. The deputation included the Master of Balliol (Mr. A. L. Smith), the Vice-Chancellor of the University of Leeds (Dr. M. E. Sadler), Mr. A. E. Zimmern, Inspector of Schools, and Mr. J. M. Mactavish, General Secretary of the Workers' Educational Association. The deputation directed attention to the need for improvement in public elementary schools, including better salaries and improved professional training for teachers, and the establishment of a national system of continuation classes, both technical and humane, to be held in daylight hours as part of the work of the week. It advised that more conscious and deliberate attention should be given to inculcating the duties of citizenship and to social ethics, especially by the development of corporate life and of self-government in the elementary schools upwards. The deputation submitted that a knowledge of natural science in some of its aspects should be regarded as a necessary part of the education of every man and woman, and that a reconciliation of the humanities with natural science and other modern subjects in the curricula of the public schools and universities is feasible. It also advised that instruction and practice in physical exercises should be a necessary part of education in all schools and for students in all universities; that there should be a fuller development of the school medical service; and that greater attention should be paid to the better nutrition of school children.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

EXCESS PROFITS DUTY.

A. B. C. has received a claim for excess profits duty in respect of his private sanatorium, and inquires if he is liable, "having regard to the exemption of professional men by the Act."

*** Section 38 of the Act lays the charge on "the profits arising from any trade or business to which this part of the Act applies"—that is (Section 39), to all trades or businesses of any description, excepting, *inter alia*, any profession the profits of which are dependent mainly on the personal qualifications of the person by whom the profession is carried on and in which capital expenditure of only a comparatively small amount is required. It will be seen that the exemption extends not to all the operations of professional men—since it is conceivable that a man undeniably engaged in professional work might also supervise a business—but that regard must be had to the circumstances of each profit-bearing concern. If, for instance, A. B. C. were in practice as a consultant, but giving time to the supervision of the sanatorium, and substantially working it through and by means of the professional skill of others, and thus managing it in a quasi-commercial manner, the sanatorium profits would probably fall within the scope of the duty. The point in issue is whether A. B. C. is carrying on the business of a sanatorium proprietor or is exercising his profession as a medical practitioner in a special manner. It is probably impossible in such a case to draw an absolutely definite line, but he may be able to show that in his case the latter predominates. The following facts are suggested as bearing on the consideration: (1) How far capital expenditure is required—for example, what comparison exists between "profits" and interest at, say, 5 per cent. on the capital sunk in the sanatorium; (2) how far payments received are for medical attendance as distinct from payments for board, rooms, etc.; (3) what proportion of A. B. C.'s time is devoted to supervising the treatment of patients; (4) what staff is maintained, and what proportion is "medical," how the additional profits have been earned—for example, by economies in the administration of the "boarding," or by increased charges for medical treatment and attention. No single one of the above considerations would probably be conclusive, but, taken together, they should lead to some general determination of the question.

INCOME TAX.

A. G. gives particulars as to the rent paid for his professional residence and states that the local surveyor of taxes has refused to allow more than one-third of the sums paid in rates, gas, coal, and servants' wages and board, stating that this is the usual basis of allowance. The house is too large for his requirements, and part of it is not used, but there is, he states, no other suitable house available.

*** Two-thirds of the rent and rates is the maximum, and our correspondent is entitled to deduct a reasonable amount, not exceeding that proportion. So far as our experience goes, the usual basis is from a half to two-thirds in the country and two-thirds in London and other large centres where there is a higher proportion of "site value" covered by the rent. In the circumstances mentioned, A. G. certainly seems to be entitled to a half, if not two-thirds. The empty portion of the large house is paid for in the rent, and we suggest that to that extent the rent is paid for professional purposes, inasmuch as A. G. would never have rented those rooms for private purposes; they are an unremunerative incubus arising from the professional use of the premises. It has to be borne in mind that the ground floor—where, presumably, the professional rooms are situated—has a higher letting value than any other. A. G. does not quote the amount of his rent, but if the domestic portions of the house are not worth to let more than one-third of the rent, our correspondent would do well to press for the full two-thirds allowance. If the surveyor of taxes cannot agree to that basis, perhaps the district or special commissioners might prove open to persuasion on the reasonableness of our correspondent's contention.

ANSWERS.

NOCTURNAL DYSPNOEA ASSOCIATED WITH NASAL OBSTRUCTION.

DR. T. W. LOCKET (Melksham) writes to suggest the trial of thyroid gland tablets.

MR. H. CLAYTON FOX, F.R.C.S.Irel. (London) writes: In cases of deflected septum with hypertrophy of the inferior turbinated bodies of the wider nasal fossa the ideal treatment would be submucous resection of the septum and turbinal bones to the degree required. In those cases of chronic rhinitis attended with engorgement of the turbinal tissue, when the body is in the recumbent position, judicious application of the cautery should meet the requirements. As regards the age at which submucous resection is permissible there is much difference of opinion; but provided a sufficient amount of the anterior border of the quadrilateral cartilage be left intact the operation seems to be quite justifiable and attended with good results at the age of 10 years and upwards.

DR. C. H. HAYTON (London) writes: Dr. J. Lewis Thomas's letter opens up afresh the subject of nasal obstruction in children. It was my privilege a few months ago to investigate the results of the submucous resection performed on patients before the age of puberty for the seven years 1908 to 1914 inclusive by the Nose and Throat Department of the Royal Infirmary of Edinburgh, under the charge of Dr. Logan Turner. In the report published in the *Journal of Laryngology* for April, 1916, three cases are mentioned in which asthmatic attacks were entirely cured by the correction of the nasal obstruction. The operation is quite successful if performed under a general anaesthetic, due regard being given to the removal of as little cartilage and bone as is absolutely necessary with as little trauma as possible. The general health of the child is much improved, and in some cases results are obtained as brilliant as in the removal of tonsils and adenoids. The risk of facial deformity following the operation has been much over-estimated.

LETTERS, NOTES, ETC.

DOCTORS' HOLIDAYS.

A LOCAL scheme by which doctors could obtain holidays was framed at Bury and briefly described in the JOURNAL of April 24th, 1915, p. 730, and Dr. J. Attridge Williams subsequently (May 1st and May 15th, 1915, pp. 783 and 869) gave an account of a plan which had been worked at Sparkhill, near Birmingham, for three years.

We have now received the following communication from Dr. A. Bygott, M.O.H. West Suffolk:

"Unfortunately, this year many hard-worked general practitioners will be deprived of their holiday. It seems a great pity that some steps could not be taken to arrange for exchanges of practice during the summer months, between practitioners in towns and rural districts.

"Such a plan would be a rest to both practitioners, as the change of employment would be very interesting.

"Work in the country needs no recommendation to the town practitioner, but it is perhaps more difficult to see the advantage the other way. There are, however, many things in a busy town which would interest the country practitioner's wife, and facilities might easily be provided to enable the doctor to engage in some form of post-graduate study, especially in towns where there is a medical school. Such facilities for post-graduate study are needed, and, so far as one can see, such exchanges might afford an easy way of obtaining it. In the army, for promotion, the medical officers are compelled to obtain periodical instruction, with very great benefit to themselves, and it seems strange that nobody attempts to point out that civil practitioners might also adopt a similar system with advantage.

"During 1915 I was able to leave my work here for a short time, and relieve other doctors working in close London hospitals, and this was very beneficial to us all. Surely such organization is well within the scope of the British Medical Association?"

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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Seven lines and under	0	5	0
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An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.